

APPENDIX D FLOODPLAINS AND WETLANDS

This appendix contains wetlands and floodplains documentation for the 10 subject tracts. Section D.1 is the Floodplain Statement of Finding. Section D.2 is an Addendum to the Floodplain and Wetland Assessments that contains recently modeled information on changes to stormwater flood flows estimated to result from the contemplated land uses. Section D.3 contains the Floodplain and Wetland Assessments that was produced as a stand-alone report by LANL and thus has its own format, page numbering, and references.

APPENDIX D FLOODPLAINS AND WETLANDS

D.1 Statement of Findings

DEPARTMENT OF ENERGY

Floodplain Statement of Findings for the Conveyance and Transfer of Certain Tracts
Administered by the Department of Energy and Located at Los Alamos National
Laboratory, Los Alamos and Santa Fe Counties, New Mexico

AGENCY: Department of Energy (DOE)

ACTION: Floodplain Statement of Findings

SUMMARY: This is a Floodplain Statement of Findings for the Conveyance and Transfer of Certain Tracts Administered by the Department of Energy and Located at Los Alamos National Laboratory, Los Alamos and Santa Fe Counties, New Mexico, prepared in accordance with 10 CFR Part 1022. DOE proposes to convey to the Incorporated County of Los Alamos and transfer to the Secretary of the Department of the Interior, in trust for San Ildefonso Pueblo, ten (10) tracts of land located at Los Alamos National Laboratory in compliance with the requirements established by Public Law 105-119. The acreage involved is about 4,800 acres; tracts are located within various canyon systems and over several mesa tops. Some of these tracts encompass floodplains and wetlands located in Los Alamos and Santa Fe Counties, New Mexico. The land shall be used by the named recipients for the purposes of historic, cultural, or environmental preservation purposes; economic diversification purposes; or community self-sufficiency purposes. DOE prepared floodplain and wetlands assessments (published in the Draft EIS and attached, together with a short addendum of newly developed clarifying information) describing the effects, alternatives, and measures designed to avoid or minimize potential harm to or within the affected floodplain. DOE will allow 30 days of public review after publication of the statement of findings before implementing the proposed action.

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SUPPLEMENTARY INFORMATION:

This Floodplain Statement of Findings for the Conveyance and Transfer of Certain Tracts Administered by the Department of Energy and Located at Los Alamos National Laboratory, Los Alamos and Santa Fe Counties, New Mexico, was prepared in accordance with 10 CFR Part 1022. A Notice of Intent to Prepare an Environmental Impact Statement was published in the Federal Register on May 6, 1998 (63 FR 25022), followed by a Notice of Availability for the Draft Environmental Impact Statement published in the Federal Register on February 26, 1999 (164 FR 9483); a floodplain and wetlands assessment was incorporated in the Draft Environmental Impact Statement. DOE is proposing to convey and transfer ten (10) tracts of land, totaling about 4,800 acres, to the Incorporated County of Los Alamos and the Secretary of the Interior, in trust for San Ildefonso Pueblo, in compliance with the requirements of Public Law 105-119. Six (6) of the ten tracts encompass wetlands and floodplains within their boundaries: the Rendija Canyon Tract, TA-21 Tract, Airport Tract, White Rock "Y" Tract, TA-74 Tract and the White Rock Tract. These tracts are located within or contain portions of Rendija Canyon, DP Canyon, Los Alamos Canyon, Bayo/Pueblo Canyons confluence, and in Canada del Buey (see individual tract maps within the attached Floodplain/Wetlands Assessments). Future use of the tracts is established in Public Law 105-119 as for: historic, cultural, or environmental preservation purposes; economic diversification purposes; or community self-sufficiency purposes. The two named recipients identified their contemplated uses of the tract as follows:

- Rendija Canyon Tract (about 910 acres) – environmental preservation (including recreational use) and residential development **or** cultural preservation.
- TA-21 Tract (about 260 acres) – commercial and industrial development.
- Airport Tract (about 205 acres) – commercial and industrial development **or** commercial development.
- White Rock "Y" Tract (about 540 acres) – environmental preservation **or** cultural preservation.
- TA-74 Tract (about 2715 acres) – cultural preservation **or** environmental preservation.
- White Rock Tract (about 100 acres) – cultural preservation and commercial development **or** commercial and residential development.

Each of these tracts may have existing or future infrastructure uses that include utility lines, utility support structures, water supply wells, storage tanks or structures, water or effluent treatment structures and transportation routes.

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The action is proposed to be located within the floodplains and wetlands due to the requirements of Public Law 105-119 that states that DOE should identify land that is suitable per the criteria established by the Law; the suitability criteria do not exclude lands lying within wetland and floodplain areas. Therefore, such potentially suitable lands were included in the tracts identified for possible conveyance and transfer action by the DOE. The conveyance and transfer of each tract, in whole or in part, constitutes DOE's Proposed Action Alternative. The only alternative to the proposed action considered is the No Action Alternative. The proposed action of conveying and transferring each of the tracts, either in whole or in part, does conform to applicable State or local floodplain protection standards. Subsequent use of the tracts by the named recipients would also conform to applicable State or local floodplain protection standards. Both Los Alamos and Santa Fe Counties have protective ordinances pertaining to flood damage prevention that is inclusive of language requiring new construction to be placed outside of floodplains. The pertinent Los Alamos County Code Ordinance is: 85-70 "An Ordinance Repealing Chapter 15.16 of the Los Alamos County Code Adopting a New Chapter 17.70 Pertaining to Flood Damage prevention". The pertinent Santa Fe County Code Ordinances are: 1988-1, "An Ordinance to Establish Regulations for Development in Flood Hazard Areas, Set Minimum Floor Elevations for Compliance, Define Flood Plains, Address Required Building Improvements, and Establish Variance Regulations for Cases Where There Isn't an Ability to Comply with Adopted Standards"; and 1996-1, "Flood Hazards".

DOE may include deed restrictions in the conveyance documents requiring the placement of new construction outside of the areas occupied by 100- and 500-year floodplains or wetlands in order to further minimize the possibility of potential harm to or within the affected floodplain consistent with the provisions of Public Law 105-119. DOE will also recommend to the potential recipients ways to reduce or eliminate surface water runoff and protect surface water quality degradation for those tracts where development may take place.

DOE will allow 30 days of public review after publication of the statement of findings prior to implementing the proposed action.

Issued in Los Alamos, New Mexico on July 20, 1999.



Program Office Official

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D.2 Addendum

Quantitative information on stormwater flood flows from the 10 individual tracts was not available when the Floodplain and Wetland Assessment was prepared in December 1998 for inclusion in the Draft CT EIS. In February 1999, University of California employees developed computer modeled estimations for the 6-hour, 100-year storm event for each of the 10 subject land tracts and combinations of tracts for affected watersheds in which the tracts are located (McLin 1999). The analyses were completed to provide estimates of quantitative information on the potential changes to stormwater flood flows as a result of urbanization at the proposed conveyance and transfer tracts. Although these numbers and figures provide insight to the changes anticipated under the modeled scenarios, quantification of the corresponding potential effects is still unavailable. Data on the determination of the relationship between peak flow (flood flow height), width of canyon floodplains, and the potential for modeled flows to scour streambed material and impact structures would be needed to provide this type of predictive information.

The 10 individual land tracts were assigned to one or more of the established watersheds at LANL (McLin 1992). Each of these groups was then used in Hydrologic Engineering Center (HEC)-1 model (Dodson 1995) simulations using the 6-hour, 100-year design storm event for Los Alamos County (McLin 1999). Baseline hydrographs were developed for each watershed to simulate pre-existing (current) conditions. These baseline hydrographs were then compared to modeled hydrographs. Only areas with a slope of less than 20 percent were considered as available for urbanization. Consideration was given to the fact that several tracts are located in the Los Alamos Canyon watershed.

Bayo Canyon above Los Alamos Canyon and Barrancas Canyon above Guaje Canyon were identified as experiencing the highest percent change in peak flow (149.5 percent) and volume (117.5 percent). Although these values are significant, neither Bayo Canyon above Los Alamos Canyon nor Barrancas Canyon above Guaje Canyon would be developed (urbanized) as a result of the conveyance and transfer process. Under this assumption, impacts are nonexistent for the TA 74 Tract. Increases in the stormwater runoff from Rendija Canyon modeled for the Guaje Canyon confluence approximate 20 percent in both peak flow and volume within the canyon itself, and in increased flows in Guaje Canyon. These changes could be significant with respect to utility locations in Guaje Canyon just downstream of the Rendija Canyon confluence. The increased stormwater runoff from Rendija Canyon could result in flow changes predicted over a distance of several miles downstream to within Los Alamos Canyon. However, the Los Alamos Canyon floodplain is probably broad enough to dampen the increased runoff. Thus, based on the proposed development scenarios for each tract, urbanization in the Rendija Canyon Tract is of greatest concern with regard to stormwater runoff effects.

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D.3 Floodplain and Wetland Assessment

**Floodplain and Wetland Assessments
for the
Proposed Conveyance and Transfer Tracts
at
Los Alamos National Laboratory,
Los Alamos and Santa Fe Counties, New Mexico**

Date Prepared: December 22, 1998

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Acronyms

<i>ac</i>	<i>acres</i>
<i>BMPs</i>	<i>Best Management Practices</i>
<i>CFR</i>	<i>Code of Federal Regulations</i>
<i>cfs</i>	<i>cubic feet per second</i>
<i>cms</i>	<i>cubic meters per second</i>
<i>DOE</i>	<i>Department of Energy</i>
<i>EIS</i>	<i>environmental impact statement</i>
<i>E.O.</i>	<i>Executive Order</i>
<i>EPA</i>	<i>Environmental Protection Agency</i>
<i>ft</i>	<i>feet</i>
<i>GIS</i>	<i>geographic information system</i>
<i>ha</i>	<i>hectares</i>
<i>km</i>	<i>kilometers</i>
<i>LAAO</i>	<i>Los Alamos Area Office</i>
<i>LANL</i>	<i>Los Alamos National Laboratory</i>
<i>m</i>	<i>meter</i>
<i>mi</i>	<i>miles</i>
<i>NPDES</i>	<i>National Pollutant Discharge Elimination System</i>
<i>NWI</i>	<i>National Wetlands Inventory</i>
<i>P.L.</i>	<i>Public Law</i>
<i>SWPP</i>	<i>Storm Water Pollution Prevention</i>
<i>TA</i>	<i>technical area</i>
<i>UC</i>	<i>University of California</i>
<i>USFWS</i>	<i>United States Fish and Wildlife Service</i>

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Summary

Ten land tracts are proposed for conveyance or transfer from Department of Energy (DOE) administrative control under mandates of Public Law (P.L.) 105-119 (1997). Floodplains as defined in 10 Code of Federal Regulations (CFR) 1022 are present in six of the ten tracts: Rendija Canyon Land Tract; TA-21 Land Tract; Airport Land Tract; White Rock "Y" Land Tract; TA-74 Land Tract; and White Rock Land Tract. Wetlands as defined in 10 CFR 1022 are present in six of the ten tracts: Rendija, TA-21, Airport, White Rock "Y," TA-74, and White Rock. Floodplain and wetland values for each land tract are evaluated against the guidance in 10 CFR 1022 and the DOE "Guidance on Environmental Requirements for DOE Real Property Transfers." Impacts are reported for each land tract. Issues associated with increases in stormwater flows from mesa top areas into canyon areas are identified with respect to suggested mitigations for protecting floodplain values, wetland values and potential contaminant migration.

1.0 Project Description

1.1 Department of Energy Notice of Intent

The U.S. Department of Energy (DOE) announced its intent (FR May 6, 1998, Volume 63, Number 87) to prepare an environmental impact statement (EIS) to assess the potential environmental impacts of conveying and transferring certain land tracts located within the Incorporated Counties of Los Alamos and Santa Fe at Los Alamos National Laboratory (LANL) in north-central New Mexico. This Notice of Intent to prepare an EIS was issued in response to Section 632 of the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 1997, P.L. 105-119.

1.2 Purpose and Scope of This Document

This document provides an analysis of potential impacts to floodplains and wetlands associated with the proposed conveyance and transfer action as required by 10 Code of Federal Regulations (CFR) 1022. The No Action Alternative for this proposed action is to not convey and transfer the subject parcels of land. Individual tracts would continue to be used as they are currently. Two primary mandates from 10 CFR 1022 drive floodplain and wetland review and analysis requirements for real property transfers: Executive Order (E.O.) 11988, "Floodplain Management," and E.O. 11990 "Protection of Wetlands." Both E.O.s dictate that Federal agencies take action to minimize loss and to preserve the natural and beneficial values of floodplains and wetlands in carrying out their responsibilities for acquiring, managing, and disposing of Federal land and facilities. Section 3(d) of E.O. 11988 and Section 4 of E.O. 11990 direct that when Federal property in a floodplain or wetland is proposed for lease, easement, right-of-way, or disposal to a non-Federal party, the Federal agency shall:

- (1) Reference in the conveyance (e.g., lease, property deed, etc.) those uses that are restricted under identified Federal, State, or local floodplain/wetland regulations;

- (2) Attach other appropriate restrictions to the uses of properties by the grantee or purchaser and any successor, except where prohibited by law; or
- (3) Withhold such properties from conveyance.

This document addresses regulatory issues associated with floodplain and wetland resources. Other issues such as Endangered Species Act considerations within the boundaries of the land tracts proposed for conveyance or transfer are addressed in a separate Biological Assessment currently under preparation. Analysis of potential impacts to floodplains and wetlands is conservative in that the highest anticipated impact is evaluated based on proposed uses noted in Table 1.

Table 1¹. Conveyance and Transfer Land Tracts and Proposed Uses

Land Tract Name	Proposed Uses		
Rendija Canyon	Cultural Preservation	or	Natural Areas & Residential
DOE LAAO	Commercial Development	or	Residential
Site 22	Commercial		
Manhattan Monument	Cultural Site		
DP Road	Commercial Development	or	Commercial/Industrial
TA-21	Commercial/Industrial		
Airport	Commercial Use	or	Commercial/Industrial
White Rock Y	Cultural Preservation	or	Natural Areas, Transportation & Utilities
TA-74	Cultural Preservation	or	Natural Areas & Utilities
White Rock	Cultural Preservation & Commercial Development	or	Commercial/Residential

Information is from two sources: (1) Letter from Joseph C. King, Los Alamos County Administrator to Dennis Martinez, Assistant Area Manager, DOE LAAO dated June 30, 1998, regarding Land Use Information for the Land Transfer EIS; and (2) Letter from Governor Harvey A. Martinez, Pueblo of San Ildefonso to DOE LAAO dated June 8, 1998, regarding DOE/Laboratory Land Parcel Use Determination.

1.3 U.S. Congressional Mandate

Congress mandated that DOE convey fee title to lands allocated for conveyance to the Incorporated County of Los Alamos (County) and transfer to the Secretary of the Interior, in trust for the San Ildefonso Pueblo (Pueblo). Parcels of land for conveyance and transfer were determined by DOE pursuant to Section 632 of the Departments of Commerce, Justice, and State; the Judiciary; and Related Agencies Appropriations Act, 1998, P.L. 105-119.

This proposed action, conveyance and transfer of federal lands, requires an EIS per 10 CFR 1021, DOE's National Environmental Policy Act Implementing Procedures. This Conveyance and Transfer EIS, in response to the Congressional mandate, will analyze potential direct impacts regarding the relocation of existing site tenants and indirect impacts of up to three uses of land for the individual tracts: (1) historic, cultural, or environmental preservation purposes; (2) economic diversification purposes; or (3) community self-sufficiency purposes. A No Action Alternative, retaining the land tracts in their current state with continuance of the existing uses of land, is also analyzed in the EIS.

Only parcels of land presently under the administrative control of DOE are considered in the proposed conveyance and transfer action. DOE administratively controls 28,654 acres (ac) (11,596 hectares [ha]) of the approximately 70,400 ac (28,489 ha) of Los Alamos County. Total area of the tracts being considered for conveyance or transfer is about 4,646 ac (1,918 ha), of which approximately 3,000 ac (1,214 ha) is within Santa Fe County and the remainder is within the boundaries of Los Alamos County (Figures 1 and 2).

1.4 Project Setting

LANL and the communities of Los Alamos and White Rock are situated primarily in Los Alamos County in north-central New Mexico (Figures 1 and 2). Portions of LANL and portions of the tracts proposed for conveyance and transfer are in Santa Fe County. LANL is located approximately 60 miles (mi) (100 kilometer [km]) north-northwest of Albuquerque and 25 mi (40 km) northwest of Santa Fe. Los Alamos County is located on the Pajarito Plateau on the eastern slope of the Jemez Mountains.

The Pajarito Plateau is composed of numerous narrow mesas defined by canyons. From the base of the Jemez Mountains, the Plateau slopes gently downward to the east-southeast for more than 15 mi (24 km) to end in a scarp that drops to the Rio Grande. The upper reaches of the Plateau are approximately 7,800 feet (ft) (2,380 meters [m]) above sea level, and its lower edge, on the rim of White Rock Canyon, is at 6,200 ft (1,890 m). Plateau canyons are 150–300 ft (46–91 m) deep and 300–1,150 ft (91–350 m) wide.

Pajarito Plateau and the Los Alamos area are biologically diverse. This diversity is due partly to the dramatic 5,000-ft (1,500-m) elevation gradient from the Rio Grande on the east to the Jemez Mountains 12 mi (20 km) to the west, and partly to the many steep canyons that dissect the area. Five major vegetative community types are found in Los Alamos County: juniper-grassland; piñon-juniper; ponderosa pine; mixed conifer; and spruce-fir. Juniper-grassland communities predominate along the Rio Grande on the eastern border of the plateau and extend upward on the south-facing sides of canyons, at elevations between 5,600 to 6,200 ft (1,700 and 1,900 m). The piñon-juniper community, generally in the 6,200- to 6,900-ft (1,900- to 2,100-m) elevation range, covers large portions of the mesa tops and north-facing slopes at the lower elevations. Ponderosa pines are found in the western portion of the plateau in the 6,900- to 7,500-ft (2,100- to 2,300-m) elevation range. These three communities predominate, each occupying roughly one-third of the LANL site. The mixed conifer community, at an elevation of 7,500 to 9,500 ft (2,300 to 2,900 m), overlaps the ponderosa pine community in the deeper canyons and on north slopes and extends from the higher mesas onto the slopes of the Jemez Mountains. The subalpine grassland community is mixed with the spruce-fir communities at higher elevations of 9,500 to 10,500 ft (2,900 to 3,200 m). Wetlands and several riparian areas enrich the diversity of plant and animals found on LANL lands. Diversity of species on LANL is reflected in the Final LANL Site Wide Environmental Impact Statement as follows:

“ ... diversity is illustrated by the presence of over 900 species of vascular plants; 57 species of mammals; 200 species of birds, including 112 species known to breed in Los Alamos County 28 species of reptiles; 9 species of amphibians; over 1,200 species of arthropods; and 12 species of fish (primarily found in the Rio Grande, Cochiti Lake and the Rito de los Frijoles). No fish species have been found within LANL boundaries” (DOE 1999c).

Partially as a result of this diversity, significant use of these resources is made by both residents and visitors. Biking, hiking, skiing, photography, and other unstructured, outdoor recreation activities are common throughout the mesas and canyons of the Pajarito Plateau, including portions of those areas presented for conveyance and transfer.

Each of the canyon areas of the individual tracts includes stream courses, areas where the long-term effects of runoff water are apparent.

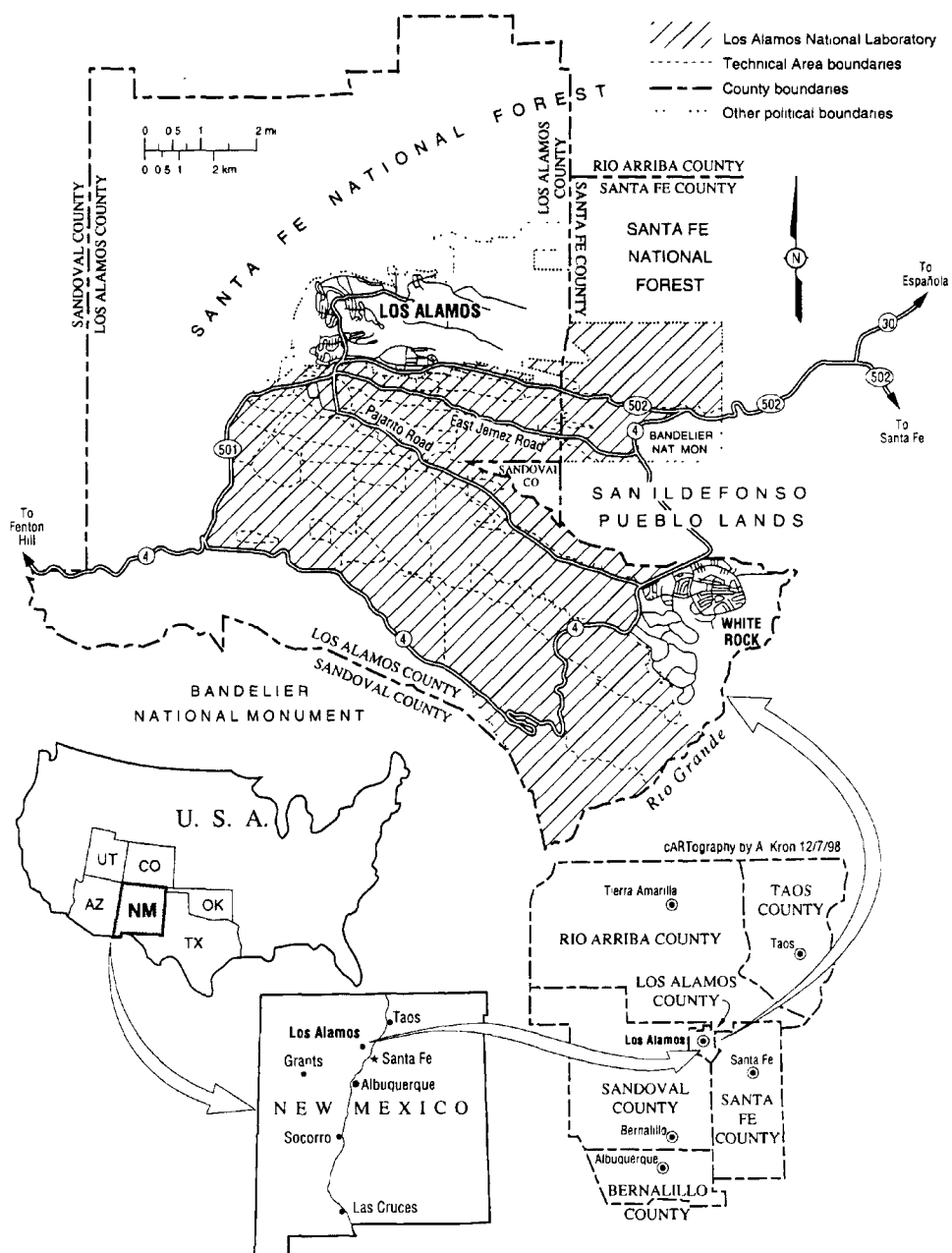


Figure 1. Location of Los Alamos National Laboratory

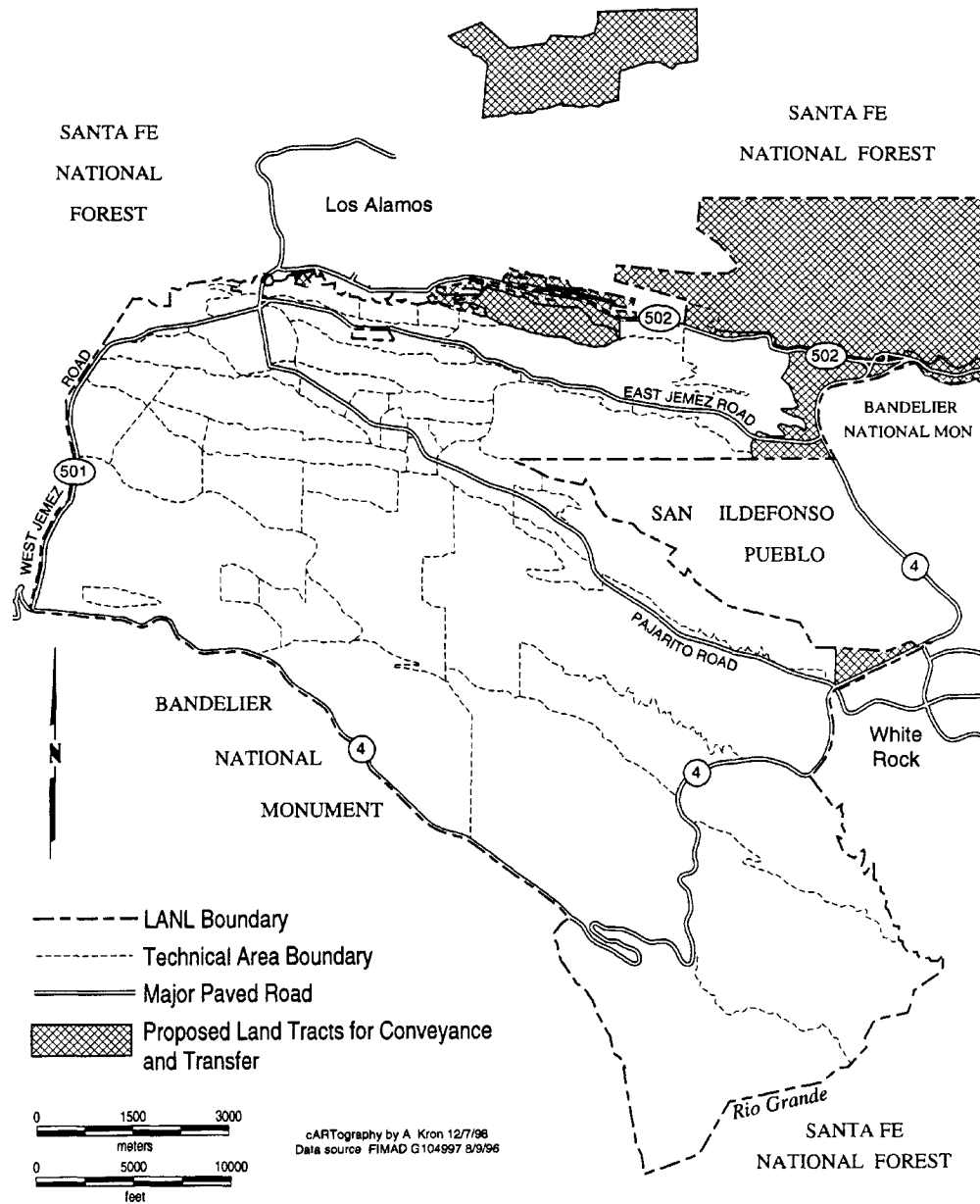


Figure 2. Location of proposed conveyance and transfer land tracts in Los Alamos and Santa Fe Counties

Floodplains are present in the Rendija, TA-21, Airport, White Rock “Y,” TA-74, and White Rock tracts. Well-defined wetlands occur in the TA-21, Airport, and TA-74 tracts. These wetlands, although mapped, have not been delineated using the 1987 Corps of Engineers Wetlands Delineation Manual. Wetlands identified by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) exist in Rendija Canyon, White Rock “Y,” and White Rock tracts. Additionally, the NWI reflects wetlands in Los Alamos Canyon near the DOE Los Alamos Area Office(LAAO), DP Road, TA-21 tracts, part of the Airport tract, and in Pueblo Canyon near the Airport tract. These NWI wetland features are described using the methodology of Cowardin et al. (1979). Wetlands features cataloged in the NWI may not be consistent with the wetland delineation process in the 1987 Corps of Engineers Wetland Delineation Manual. Table 2 includes information for each tract regarding floodplain and wetland areas. Table 3 includes information for each tract regarding NWI features both within the tract and in nearby canyons. No floodplain or wetland resources are present in the DOE LAAO, Site 22, Manhattan Monument, or DP Road land tracts.

Table 2¹. Conveyance and Transfer Tracts: Floodplains and Wetlands Areas.

Tract Name	Area ac/ha	Wetland Area in Tract ac/ha	Floodplain Area in Tract ac/ha
Rendija Canyon	910/368	NWI Area, See Table 3 ²	6.0/2.5
DOE LAAO	15/6	None	None
Site 22	< 0.25/0.10	None	None
Manhattan Monument	< 0.25/0.10	None	None
DP Road	50/20	None	None
TA-21	260/105	NWI Area, See Table 3 ² See also footnotes 3, and 4	See footnote 5
Airport	205/83	See footnote 4	See footnote 5
White Rock “Y”	540/219	NWI Area, See Table 3 ²	11.7/4.7
TA-74	2,715/1,099	10.7/4.33 and see footnote 2	37.9/15.3
White Rock	100/40	NWI Area, See Table 3 ²	4.0/1.64
TOTALS	4,795/1,950	10.7/4.33	56.1/27.6

1. Floodplain and Wetland areas calculated from GIS ARC/INFO and ArcView software using multiple UC data sets (Koch 1998). These figures are preliminary in nature. Final area calculations will be based upon surveyed boundaries for each land tract.
2. This tract includes wetlands identified on the NWI database in “line feature” format. These NWI wetlands are described in Table 3. Methods used to identify these areas may not be consistent with the wetland delineation process in the 1987 Corps of Engineers Wetland Delineation manual.
3. Wetlands in TA-21. These mesa top wetlands were associated with industrial outfalls. At some time in the past, these outfalls resulted in the creation of small (<1 ac, <1 ha) wetlands. These industrial outfalls have since been decommissioned and closed (DOE 1996). Eventually, these wetlands will disappear. This finding was confirmed by on-site evaluation during the 1998 field season.
4. A small (<1 ac, <1 ha) wetland exists in the bottom of DP Canyon, near the head of the canyon. With presently designated conveyance and transfer tract boundaries, portions of this wetland exist in both the Airport Tract (III) and the TA-21 Tract (I).
5. A non-delineated floodplain is present in DP Canyon. Location with respect to land tract has not been established. This floodplain may occur entirely in the TA-21 land tract or be partially in the Airport land tract.

Table 3. Conveyance and Transfer Tracts and Adjacent Canyons: National Wetlands Inventory Features¹ (Bennett 1993)

Tract	NWI Wetland Line Feature on Tract	NWI Wetlands in Nearby Canyons	Length of NWI Feature ft/m	Estimated Area ² ac/ha
Rendija Canyon	R4SBA ³	See below	5,597/1,706	1.3/0.5
Rendija Canyon	See above	Guaje Canyon ⁴ R4SBA/PEM1A ⁵	22,068/6,726 40,401/12,314	5.1/2.1 9.3/3.8
DOE LAAO	None	LA Canyon ⁶ R4SBA/PSS1A ⁷	32,369/13,100	7.4/3.0
Site 22	None	None	NA	NA
Manhattan Monument	None	None	NA	NA
DP-Road	None	LA Canyon R4SBA/PSS1A	NA	NA
TA-21	None	LA Canyon R4SBA/PSS1A	NA	NA
Airport	None	Pueblo Canyon ⁸ R4SBA/R4SBJ ⁹ PEM1KF ¹⁰ R4SBKC ¹¹ PEM1A	24,346/7,421	5.6/2.3
White Rock "Y"	R4SBA/R4SBC ¹²	None	19,373/5,905	4.5/1.8
TA-74	R4SBA/R4SBJ PEM1KF/ R4SBKC	None	13,518/4,120	3.1/1.3
White Rock	R4SBA	None	957/292	0.2/0.09
TOTALS	NA	NA	NA	36.5/14.8

1. Based on electronic versions of the NWI and classification terminology of Cowardin et al. (1979).
2. Area of the NWI wetlands was calculated by multiplying the total length by a mean width of 10 ft (3 m) and converting to acres and hectares.
3. R4SBA - Riverine (associated with a river or stream course, wetland not dominated by trees, shrubs, etc.), intermittent (flowing only part of each annual cycle), streambed (located in a streambed), and temporarily flooded (surface or subsurface water is present some portion of the year).
4. Length of Rendija Canyon NWI below transfer tract measured from tract to New Mexico (NM) State Route 502. Length of Guaje NWI measured from Guaje/Rendija confluence to NM State Route 502.
5. PEM1A - palustrine, (all nontidal wetlands dominated by trees, shrubs), emergent (plant tissue above the water surface), persistent (consistently present), temporarily flooded.
6. Length of Los Alamos Canyon NWI measured from Diamond Drive (Otowi Bridge) to NM State Route 4.
7. PSS1A - palustrine, scrub-shrub, broad-leaved deciduous plant species, temporarily flooded.
8. Length of Pueblo Canyon NWI measured from the West Airport Tract Boundary to NM State Route 502.
9. R4SBJ - riverine, intermittent, streambed, intermittently flooded.
10. PEM1KF - palustrine, emergent, persistent, artificially and intermittently flooded.
11. R4SBKC - riverine, intermittent, streambed, artificially and seasonally flooded.
12. R4SBC - riverine, intermittent, streambed, seasonally flooded

2.0 Description and Effects on Floodplains and Wetlands

Floodplains and wetlands are defined in 10 CFR 1022. Wetland functions are naturally occurring characteristics of wetlands such as food web production; general, nesting, resting, or spawning habitat; sediment retention; erosion prevention; flood and runoff storage; retention and future release; ground water discharge, or recharge; land nutrient retention and removal. Wetland values are ascribed by society based on perception of significance and include water quality improvement, aesthetic or scenic value,

experiential value, and educational or training value. These values often reflect concerns regarding economic values; strategic locations; and in arid regions, location relative to other landscape features. Thus, two wetlands with similar size and shape could serve the same function but have different values to society. For example, a wetland that retains or changes flood flow timing of a flood high in the mountains might not be considered as valuable as one of similar size that retains or changes flood flow timing of a flood near a developed community. Wetlands were addressed in the DRAFT LANL Site-Wide Environmental Impact Statement as follows:

“Wetlands in the general LANL region provide habitat for reptiles, amphibians, and invertebrates and potentially contribute to the overall habitat requirements of the peregrine falcon, Mexican spotted owl, southwestern willow flycatcher, and spotted bat. Wetlands also provide habitat, food, and water for many common species such as deer, elk, small mammals, and many migratory birds and bats. The majority of the wetlands in the LANL region are associated with canyon stream channels or are present on mountains or mesas as isolated meadows containing ponds or marshes, often in association with springs (DOE 1998).”

Presence or absence of floodplains and wetlands on each of the ten land tracts proposed for conveyance or transfer has been assessed using Flood Hazard Boundary Maps for Los Alamos County (DHUD 1987), geographic information system (GIS) data sets, including the USFWS NWI, University of California (UC) internal data sets, on-site surveys, and previously developed floodplain modeling (McLin 1992). Proposed uses for each of the ten tracts being evaluated for conveyance or transfer are discussed, and specific information on floodplains, tract wetlands, and adjoining or nearby wetlands is provided. Land tract boundaries presented in this report are approximate. All land tracts will be surveyed and boundary lines defined prior to conveyance and transfer. These changes, if relevant to floodplain or wetlands concerns, will be addressed in revisions to the information presented in this report, as appropriate.

Each of the ten subject tracts is discussed below in the context of land uses proposed by the future recipients: the Los Alamos County (County), or the Secretary of Interior in trust for the San Ildefonso Pueblo (Pueblo). Only a “bounding” use is analyzed for each tract with respect to floodplains and wetlands. Floodplain and wetland considerations are presented as mandated in 10 CFR 1022 and the DOE Guidance on Environmental Requirements for DOE Real Property Transfers (1997).

Locations of floodplains and wetlands associated with, or in close proximity to, land tracts proposed for conveyance or transfer appear with the discussion of the individual tracts, in sections 2.1 through 2.10, below. McLin (1992) modeled all major 100-year floodplains for LANL using U.S. Army Corps of Engineers Hydrologic Engineering Center Hec-1 and Hec-2 computer based models. Figure 3 represents those floodplains on LANL. Wetlands within LANL have been broadly mapped by the USFWS. This information is available in the NWI in a GIS-based format. This hierarchical system follows Cowardin et al., 1979, and is based entirely on aerial photography. Small wetlands, or those in steep canyons, may not be detected using this method. Additional on-site surveys and internal UC databases were also used to gather information regarding these resources.

Sections 2.1 through 2.10 discuss the direct and indirect (both primary and secondary) effects of the Proposed Conveyance and Transfer Action on floodplain and wetlands resources located in the tracts or located within adjoining or nearby tracts not proposed for conveyance or transfer. Effect of proposed floodplain actions on lives and property, and on natural and beneficial floodplain values is evaluated. Los Alamos County Code NO. 85-70 (1987) identifies and addresses floodplain issues with respect to Los Alamos County lands. Provisions of the Los Alamos County Code No. 85-70 (1987) limit development in floodplains, eliminating or reducing the potential for loss of life or property. Similar provisions are provided by Santa Fe County Building Codes for construction within floodplain areas. Clean Water Act

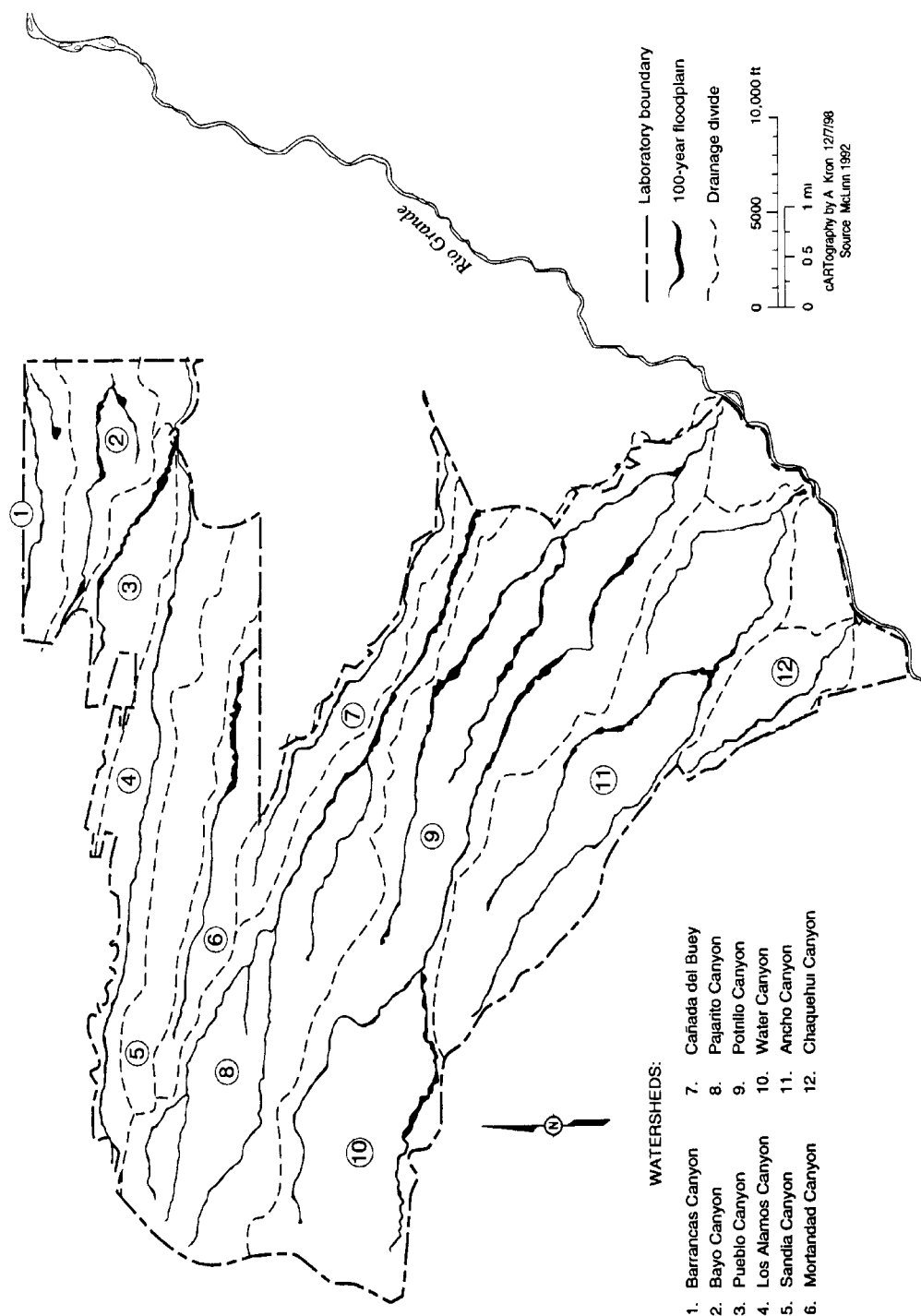


Figure 3. Los Alamos National Laboratory 100-year floodplain map.

404 permit process requirements would limit development in wetlands without regulatory review and consensus from the Corps of Engineers.

In the preparation of this report, a qualitative evaluation of potential development on mesa tops identified increased stormwater flows off mesas into canyons as a concern. These concerns include a potential for impacts to floodplain and wetland values, and contaminant-plume-movement. Potential effects are based on areas of impervious surface during and following development of mesa top areas.

Previous studies have quantified stormwater runoff for areas similar to the TA-21, DP Road, Airport, and DOE LAAO land tracts. In the “Environmental Assessment for the Transfer of the DP Road Tract to the County of Los Alamos, Los Alamos New Mexico,” DOE (1997a), an analysis of the effect of changes to the DP Road Tract stormwater run-off is presented, noting:

‘The Los Alamos Canyon watershed upstream from the DP Road Tract comprises about 24.6 sq km (9.5 sq mi) (based on McLin 1995). The DP Road Tract contributes about 12 hectares (28 acres) to the Los Alamos Canyon watershed. An individual six-hour storm event with a probability of reoccurring once every two years, would produce a total runoff volume in Los Alamos Canyon in the vicinity of the DP Road tract of about 8 acre-feet, with a peak flow of about 19 cubic feet per second.’

DOE concluded that the effects of this change were minimal, stating:

‘Because stormwater runoff from the DP Road tract would constitute a very small fraction of the runoff from the upstream watershed, surface water quality would not be appreciably affected by the Proposed Action. BMPs (Best Management Practices) to control soil and sediment erosion would be implemented during construction.

Development of the DP Road tract would probably increase stormwater runoff into Los Alamos Canyon. If the County discharges stormwater from a point source then LANL may implement erosion controls, such as the use of hay bales, riprap, and splash pads. Since the DP Road tract is approximately 0.1 percent of the Los Alamos Canyon watershed, the amount of additional runoff from development of the tract would be small compared to that derived from the total upstream watershed area. Therefore, any increase in mobilization of contaminated sediments due to increased runoff is expected to be negligible.’

Additional analysis was performed in the environmental assessment for the Research Park land lease (DOE 1997b). In this instance, DOE noted:

‘Surface water discharge and soil erosion from annual and 100-year storm events are primary water quality issues associated with the construction and operation of new facilities at LANL. The proposed Research Park tract is situated in an area that is partially developed for use as parking lots and includes vacant land covered by native vegetation and undisturbed rock and soil. The 30 ac (12 ha) proposed for development has a less than 20 percent slope and is divided by a natural drainage channel which flows from the west to the east and northward into Los Alamos Canyon (See Figure 2-2). Los Alamos Canyon contains an established perennial stream, which flows from the west down stream to the east. Currently, it is estimated that the site proposed for development generates 14 acre-feet of runoff per year and could generate 58 cubic feet per second (cfs) during a 100-year flood event (Lemke 1997). Surface water generated during storm events is directly absorbed by soil and vegetation, collected from over a small portion of the site into a small existing retention pond, or flows off the site into Los Alamos Canyon via natural drainage channels.’

In this instance, DOE (1997b) presented two conclusions, one addressing responsibilities of the parties to the lease agreement:

‘As a provision of the DOE lease on the proposed Research Park tract, the County would be required to apply for, and attain, an NPDES [sic National Pollutant Discharge Elimination System] permit through the State of New Mexico or EPA. As part of the NPDES construction permit application, the County would prepare and submit an NPDES SWPP [sic Storm Water Pollution Prevention (SWPP)] Plan. The NPDES SWPP Plan would formally identify all site surface water drainage plans and the BMPs that would be implemented to avoid unnecessary soil erosion during the construction and operation of the proposed Research Park. The BMPs would include designs for constructing and maintaining all necessary surface water flow check dams, stormwater retention ponds, and other erosion control measures. Specific measures would be implemented to avoid disturbance, stormwater run-on and run-off from existing PRSs as deemed necessary by the NMED and EPA under the NPDES permit.’

and a second, concerning potential impacts:

‘A maximum of about 30 ac (12 ha) would be disturbed during construction of the proposed Research Park, and after construction, the developed area would consist of an estimated 14.2 ac (5.6 ha) of rooftops, asphalt, and concrete surfaces. Based on this and other site-specific information, LANL analyzed the potential stormwater discharge that could be generated during and after the construction of the proposed Research Park. During construction, the site under development could generate a peak surface water discharge of 58 cfs [sic cubic feet per second] during a single 100-year flood event. Once constructed, the developed area of the proposed Research Park would generate 27 ac-ft [sic acre-feet] of stormwater runoff annually, and could generate as much as 118 cfs during a single 100-year flood event (Lemke 1997).

The EPA has established regulations and guidelines for the development of a SWPP Plan for construction sites. The EPA regulations state that for a common drainage serving an area with 10 or more disturbed ac (4 or more ha), a stormwater retention pond providing 3,600 ft³ (100 m³) of storage capacity must be provided to sufficiently control erosion from surface water discharges. During both construction and operation of the proposed Research Park, surface water discharges off the site would be controlled using the BMPs specified in the NPDES permit and SWPP Plan. Under these conditions, the proposed action is not expected to adversely affect water quality.’

Quantitative information with respect to stormwater flood flows from the ten individual land tracts has not been developed. Stormwater flood flows for the White Rock land tract were assessed (McLin 1998) using current commercial versions of the U.S. Army Hec-1 and Hec-2 hydrology models. Soils, slope, and vegetation on the White Rock land tract are similar to conditions existing on other land tracts, but a direct correlation between all tracts has not been established. McLin’s (1998) model evaluation of the White Rock land tract indicates current runoff from the White Rock land tract, with no human-made impervious services is 26 cubic feet per second (cfs) (0.7 cubic meters per second [cms]). That flow would increase to 74 cfs (2.1 cms) if one-half of the White Rock land tract were paved. Additional information for other flows is presented in Section 2.10 on the White Rock land tract.

Although this information is not specific to all areas being considered for conveyance or transfer, it reflects the nature and scope of the anticipated effects on floodplain values, wetland values, and potential movement of contaminant plumes in canyon areas. Existing human-made structures designed to collect and convey stormwater flows may be insufficient to control increased stormwater flows. Also, current “end-of-pipe” velocity diffusing devices (such as “rip/rap”) and erosion control devices (such as silt fence)

may be overwhelmed by increased flows, potentially impacting downstream floodplain or wetland values on lands not associated with the conveyance and transfer process.

2.1 Rendija Canyon Tract

2.1.1 Description

The Rendija Canyon tract consists of approximately 910 ac (368 ha) (Figure 4). Rendija Canyon lies at the extreme north edge of the Los Alamos townsite and extends north and east into open land without facilities or structures. This tract includes a significant portion of Rendija Canyon. The tract is adjacent to Forest Service property in Guaje Canyon to the north and Barrancas Canyon to the south.

Rendija Canyon is mostly undeveloped. There is a shooting range on land leased from DOE and a single residence near the shooting range. A portion of this tract was previously used as a firing site for military ordnance by LANL's management and operations contractor. Water well pumping stations exist in the bottom of the canyon just off the tract.

2.1.2 Proposed Use

Rendija Canyon tract may be used for cultural preservation or natural areas and residential use. Residential use is the bounding use for the purposes of this analysis. The bounding use assumes all land area with less than a 20 percent slope will be incorporated in that use, if the use is commercial, industrial, or residential. Uses for cultural preservation or natural areas assume no development will occur.

2.1.3 Floodplains and Wetlands Description and Impacts from Proposed Conveyance and Transfer Action

Floodplains

Rendija Canyon has an ephemeral stream with a moderately broad floodplain occupying 30 to 50 percent of the canyon bottom. Flow and seasonality information are not available. It is apparent from a reconnaissance of the area that flood waters have occurred in the past. Floodplain information is depicted in DHUD (1987), and was confirmed by on-site evaluation during the 1998 field season (April to October 1998).

Tract Wetlands

Wetlands in Rendija Canyon consist primarily of disjointed segments separated by non-wetland vegetation and exposed rock. These linear wetlands range in width from a few feet (<1 m) to perhaps 10 ft (3 m). Individual segments of wetland plant species range from sparse to moderately dense. These wetlands are primarily riparian (stream associated), and vegetation is dominated by willow (*Salix* sp.). Other species that may occur include cottonwood (*Populus* sp.), Rocky Mountain maple, or box elder (*Acer* sp.) and water birch (*Betula* sp.). Species of wet grasses may also be present. These riparian wetlands function primarily as sediment traps and also provide valuable habitat diversity for resident animals and migratory birds. Small quantities of water, sufficient for requirements of resident or

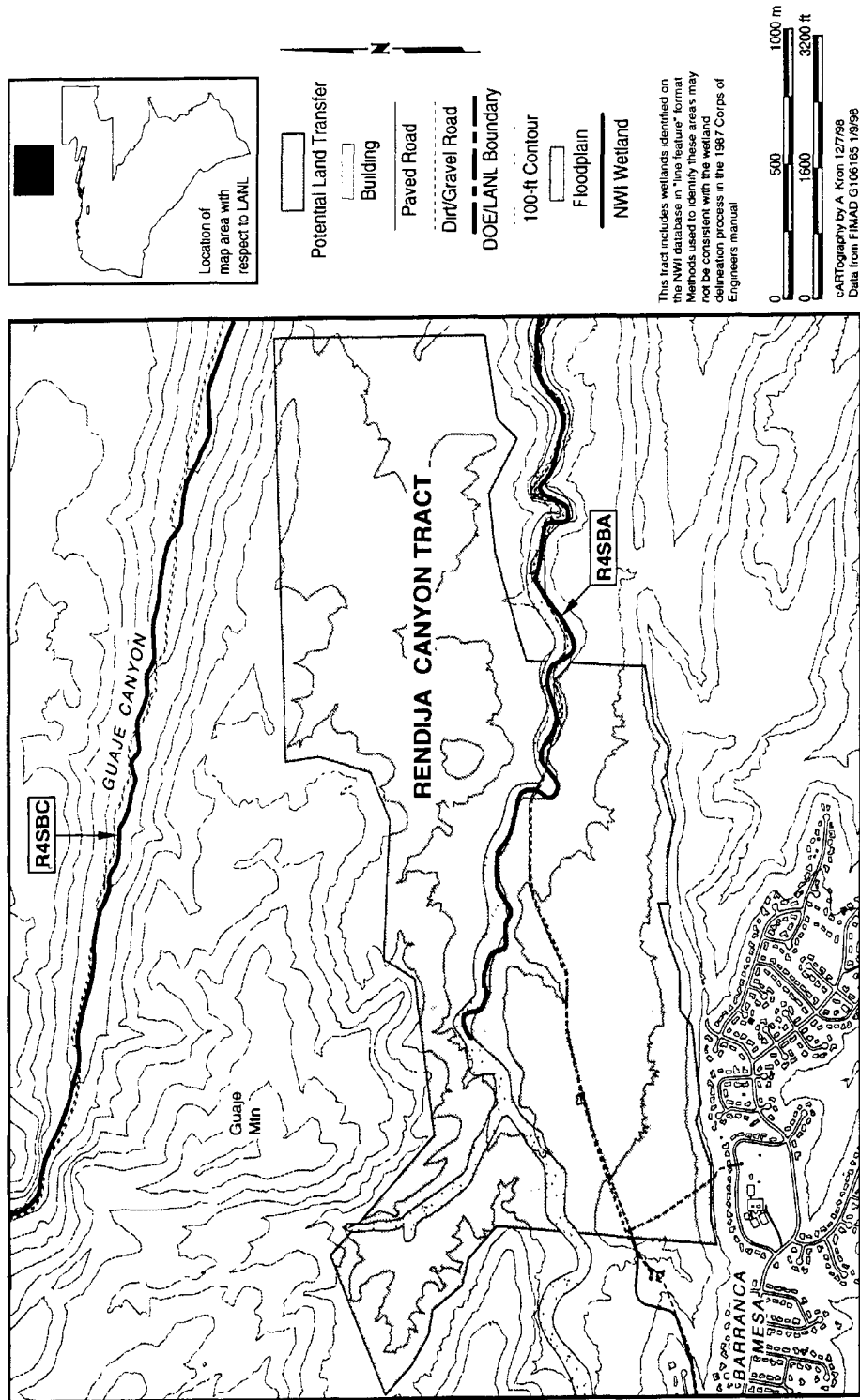


Figure 4. Overview and surface water features (floodplains and wetlands) for proposed land tract Rendija Canyon.

migratory species, may be present during dry portions of the year, depending upon precipitation, evaporation, and other natural processes.

These wetlands were identified as a “line feature” and categorized by the NWI process as “riverine,” or “R4SBA,” where R-riverine is associated with a river or stream course, wetland not dominated by trees, shrubs, etc., 4-intermittent is flowing only part of each annual cycle, SB-streambed is located in a streambed, and A-temporarily flooded is surface or subsurface water is present some portion of the year. A total of approximately 5,597 ft (1,706 m) of R4SBA category of wetlands exists in the Rendija Canyon land tract. Methods used to identify these areas may not be consistent with the wetland delineation process in the 1987 Corps of Engineers Wetland Delineation Manual. An explanation of the types and extent of these NWI wetlands is presented in Table 3 in Section 1.4 of this assessment.

Summary of Impacts

Direct impacts or effects on floodplain or wetland values have not been identified for the Rendija Canyon land tract. No potential for loss of life or property have been identified with respect to floodplains in this tract.

Primary indirect impacts (on tract lands) resulting from future development of this tract for residential use could result in complete or partial loss of wetlands and their associated values as a direct result of construction activities (removal of wetland areas or impact from vehicle activity) or by indirect effects (such as runoff). Wetland values are described in the first paragraph of Section 2.0 of this assessment. Wetland values potentially impacted by residential development in the Rendija Canyon land tract include food production, nesting or resting habitat, sediment retention, water quality improvement, and experiential or educational. Development in the floodplain portion of the tract could result in a potential for loss of human life and/or property. Mitigations could be installed to reduce or eliminate these impacts.

Secondary indirect impacts (off tract lands) resulting from future development of the Rendija Canyon land tract for residential use could result in effects to floodplain and wetland resources in canyon bottoms not associated with the subject tract. These secondary indirect effects are anticipated to come from both changes in timing of stormwater runoff and increases in stormwater runoff from increased impermeable surfaces within the tract. Floodplain values potentially impacted by residential development in the Rendija Canyon land tract include alteration of flood flow retention times, redistribution of sediments, and stream channel migration. Wetland values potentially impacted by residential development in the Rendija Canyon Land Tract include alteration of downstream wetland food production, nesting or resting habitat, sediment retention time changes, and loss of experiential or educational opportunities. Mitigations could be installed to reduce or eliminate these off-site impacts.

At a minimum, best management practices for runoff control, such as silt barriers and stormwater retention ponds, should be in place to mitigate runoff effects during construction or development efforts. These best management practices should incorporate considerations of the NPDES permit program and Environmental Protection Agency (EPA) requirements for a SWPP Plan on projects where more than 5 ac (2 ha) will be disturbed. A stormwater retention pond providing 3,600 ft³ (100 m³) of storage capacity is the EPA standard for NPDES permits for a common drainage serving an area with 10 or more disturbed acres (4 ha or more). Following construction, stormwater runoff from developed sites may be subject to NPDES permit restrictions and requirements.

2.2 DOE Los Alamos Area Office Tract

2.2.1 Description

The DOE LAAO tract consists of approximately 15 ac (6 ha) within the Los Alamos townsite. It is located in the urban portion of the Los Alamos townsite (Figure 5) and is accessible from Trinity Drive, a major vehicle artery. The site is separated from Trinity Drive by private property. This tract is above and to the north of Los Alamos Canyon. All utilities (gas, water, sewer, and electric) are present at the site.

2.2.2 Proposed Use

The DOE LAAO tract has been identified for future commercial or residential use; commercial use constitutes the bounding future use for this analysis. The bounding use assumes all land area with less than a 20 percent slope will be incorporated in that use if the use is commercial, industrial, or residential. Uses for cultural preservation or natural areas assume no development will occur.

2.2.3 Floodplains and Wetlands Description and Summary of Impacts from Conveyance and Transfer Action

Floodplains

The DOE LAAO land tract has no floodplains within its boundaries. Floodplains have been defined in adjacent Los Alamos Canyon.

Tract Wetlands

The DOE LAAO tract has no wetlands within its boundaries. Wetlands have been defined in adjacent Los Alamos Canyon.

Nearby or Adjoining Wetlands

Wetlands are present in Los Alamos Canyon which adjoins the DOE LAAO land tract, the DP Road land tract, the TA-21 land tract, and the Airport land tract (through DP Canyon). These Los Alamos Canyon wetlands consist of lengthy but disjointed segments with non-wetland vegetation or rock areas intermixed. These linear wetland features range in width from one to several feet (<1 m to ~ 3 m) and individual segments of vegetation may be sparse, consisting of only a few plants, or moderately dense. A “riverine” element, or “R4SBA,” has been identified by the NWI, where R-riverine is associated with a river or stream course, wetland not dominated by trees, shrubs, etc., 4-intermittent is flowing only part of each annual cycle, SB-streambed is located in a streambed, and A-temporarily flooded is surface or subsurface water and is present some portion of the year. Vegetation in these stretches is dominated by willow. Other species that may occur include cottonwood, Rocky Mountain maple or box elder, and water birch. Species of wet grasses may also be present.

“Palustrine” reaches of wetlands, or “PSS1A,” have also been identified by the NWI for this tract, where P-palustrine is all non-tidal wetlands dominated by trees and shrubs, SS-scrub-shrub is 1-broad-leaved deciduous plant species, and A-temporarily flooded. These wetlands are primarily riparian (stream associated) in nature, and the understory vegetation is dominated by cattails (*Typha* sp.) or sedges (*Carex* sp.) and rushes (*Juncus* sp.), generally occurring in the stream channel. Overstory species include

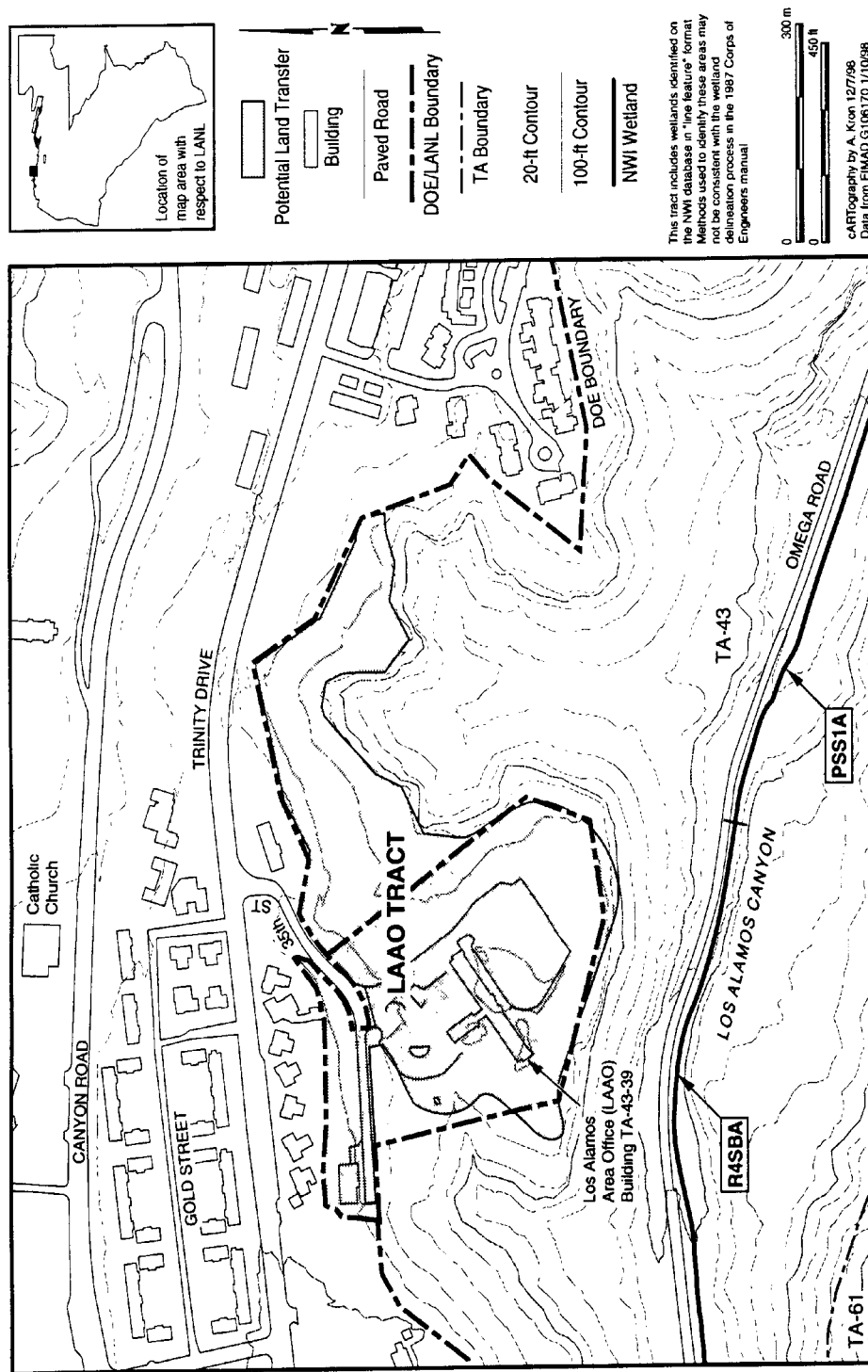


Figure 5. Location of proposed land tract LAAO.

cottonwood and willow with other species such as Rocky Mountain maple or box elder present in some locations.

These riparian wetlands function primarily as sediment traps and also provide valuable diversity of habitat for resident animals and migratory birds. Small quantities of water, sufficient for requirements of resident or migratory species may be present during dry portions of the year, depending upon precipitation, evaporation and other natural processes. Hydrology for these wetlands is surface water and potentially subsurface alluvial flow from the stream in Los Alamos Canyon. A total of 32,369 ft² (13,100 m²) of RS4BA and PSS1A wetlands are present in Los Alamos Canyon between the Otowi Bridge and New Mexico State Route 4.

Summary of Impacts

Direct impacts or effects on floodplain or wetland values have not been identified for the DOE LAAO land tract. No potential for loss of life or property have been identified with respect to floodplains in this tract.

Primary indirect impacts (on tract lands) to floodplains or wetlands resulting from future development of the DOE LAAO land tract for commercial or industrial use have not been identified. No on tract floodplain or wetland values would be impacted by commercial development on the DOE LAAO land tract.

Secondary indirect impacts (off tract lands) resulting from future development of the DOE LAAO land tract for commercial or industrial use could result in minimum impacts to floodplain and wetland values in canyon bottoms not associated with the subject tract. Off tract floodplain values potentially impacted by commercial development in the DOE LAAO land tract include alteration of flood flow retention times, redistribution of sediments, and stream channel migration.

Wetland values are described in the first paragraph of Section 2.0 of this assessment. Off tract wetland values potentially impacted by commercial development in the DOE LAAO land tract include alteration of downstream wetland food production, nesting or resting habitat, sediment retention time changes, and loss of experiential or educational opportunities. These minor secondary indirect impacts are anticipated to come from both changes in timing of stormwater runoff and increases in stormwater runoff from increased impermeable surfaces within the tract. Mitigation could be installed to eliminate or minimize these impacts.

At a minimum, best management practices for runoff control, such as silt barriers and stormwater retention ponds, should be in place to mitigate runoff effects during construction or development efforts. These best management practices should incorporate considerations of the NPDES permit program and EPA requirements for a SWPP Plan on projects where more than 5 ac (2 ha) will be disturbed. A stormwater retention pond providing 3,600 ft³ (100 m³) of storage capacity is the EPA standard for NPDES permits for common drainage serving an area with 10 or more disturbed acres (4 ha or more). Following construction, stormwater runoff from developed sites may be subject to NPDES permit restrictions and requirements.

2.3 Site 22 Tract

The Site 22 land tract consists of a location west of Trinity Drive and surrounded by commercial development (Figure 6) that totals less than 0.25 ac (0.10 ha) in the center of the Los Alamos townsite on the Los Alamos mesa top. Site 22 is immediately adjacent to Los Alamos Canyon and behind commercial developments on Trinity Drive. No floodplains or wetlands are associated with this land tract. Commercial use is the bounding use for this analysis.

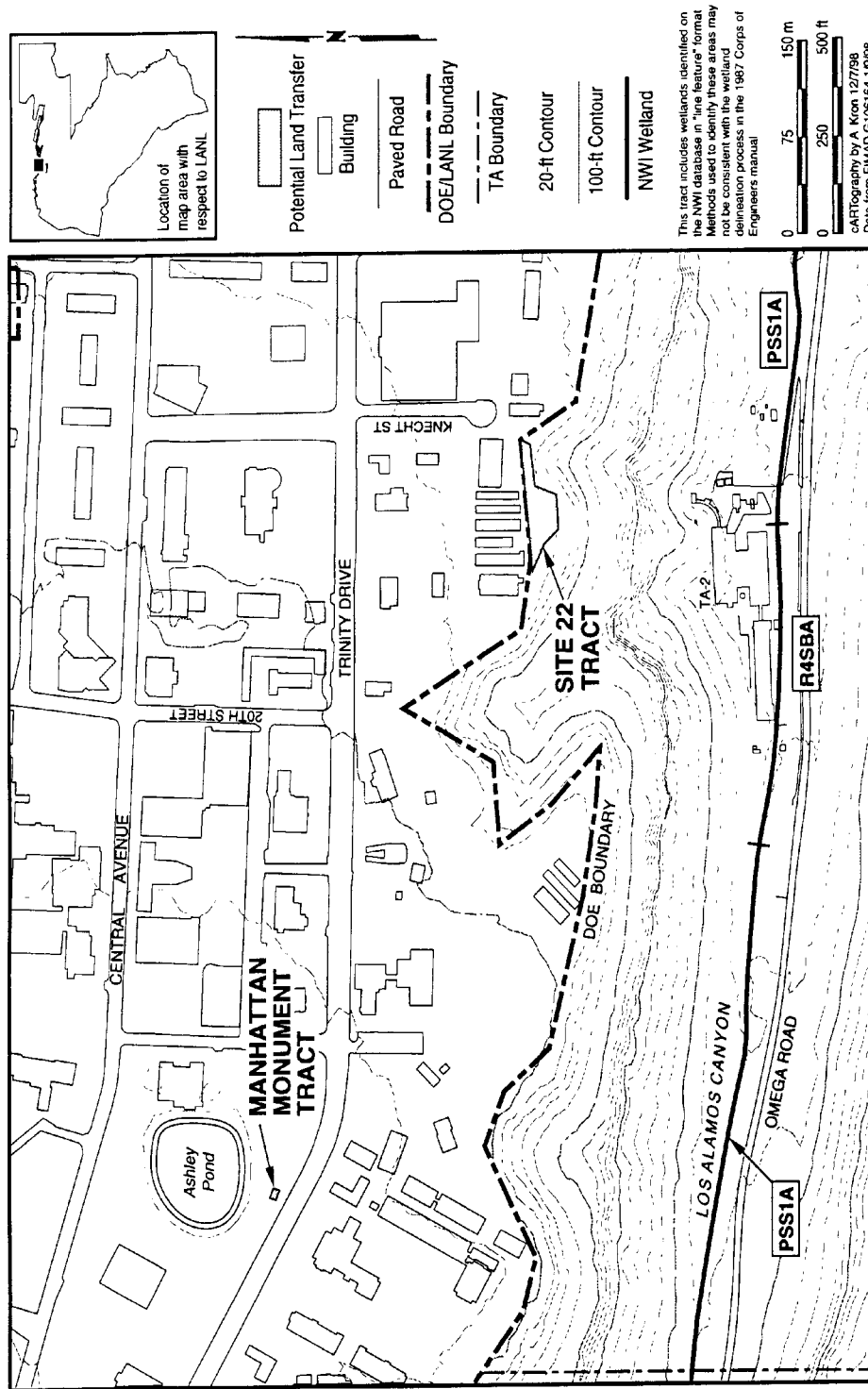


Figure 6. Location of proposed land tract Site 22 and Manhattan Monument.

2.4 Manhattan Monument Tract

The Manhattan Monument (Figure 6) consists of a small timber and roof building in the center of the Los Alamos commercial district. A plaque is displayed. Total area of this site is less than 0.25 ac (0.10 ha). No floodplains or wetlands are associated with this land tract. Future use is expected to remain unchanged.

2.5 DP Road Tract

2.5.1 Description

The DP Road tract consists of approximately 50 ac (20 ha) of generally undeveloped lands on the eastern edge of the Los Alamos townsite (Figure 7). The DP Road segments, north, south and west, are west of the TA-21 Tract and adjacent to it. The south DP Road area is adjacent to Los Alamos Canyon. A portion of the extreme upper end of DP Canyon may be included in the DP Road land tract.

The land proposed for conveyance or transfer is on the mesa top above Los Alamos Canyon on the south and DP Canyon on the north at elevations of approximately 7,200 ft (2,195 m). This tract is bisected by DP Road which terminates at a LANL complex (TA-21) at the end of South Mesa.

2.5.2 Proposed Use

DP Road tract has been identified as an area for commercial and industrial use. DP Road South has been identified for possible residential use. The bounding use for the tract is commercial/industrial. The bounding use assumes all land area with less than a 20 percent slope will be incorporated in that use, if the use is commercial, industrial, or residential. Uses for cultural preservation or natural areas assume no development will occur.

2.5.3 Floodplains and Wetlands Description and Impacts from Proposed Conveyance and Transfer Action

Floodplains

At this time, no floodplains have been identified on the DP Road land tract.

Tract Wetlands

A review of the USFWS NWI revealed no wetlands in the DP Road land tract. An on-site evaluation performed during the 1998 field season confirmed that there are no wetlands within the tract boundaries.

Nearby or Adjoining Wetlands

Wetlands are present in Los Alamos Canyon which adjoins the DP Road land tract. These wetland features are presented in Section 2.2.3 “Nearby or Adjoining Wetlands” for the DOE LAAO land tract.

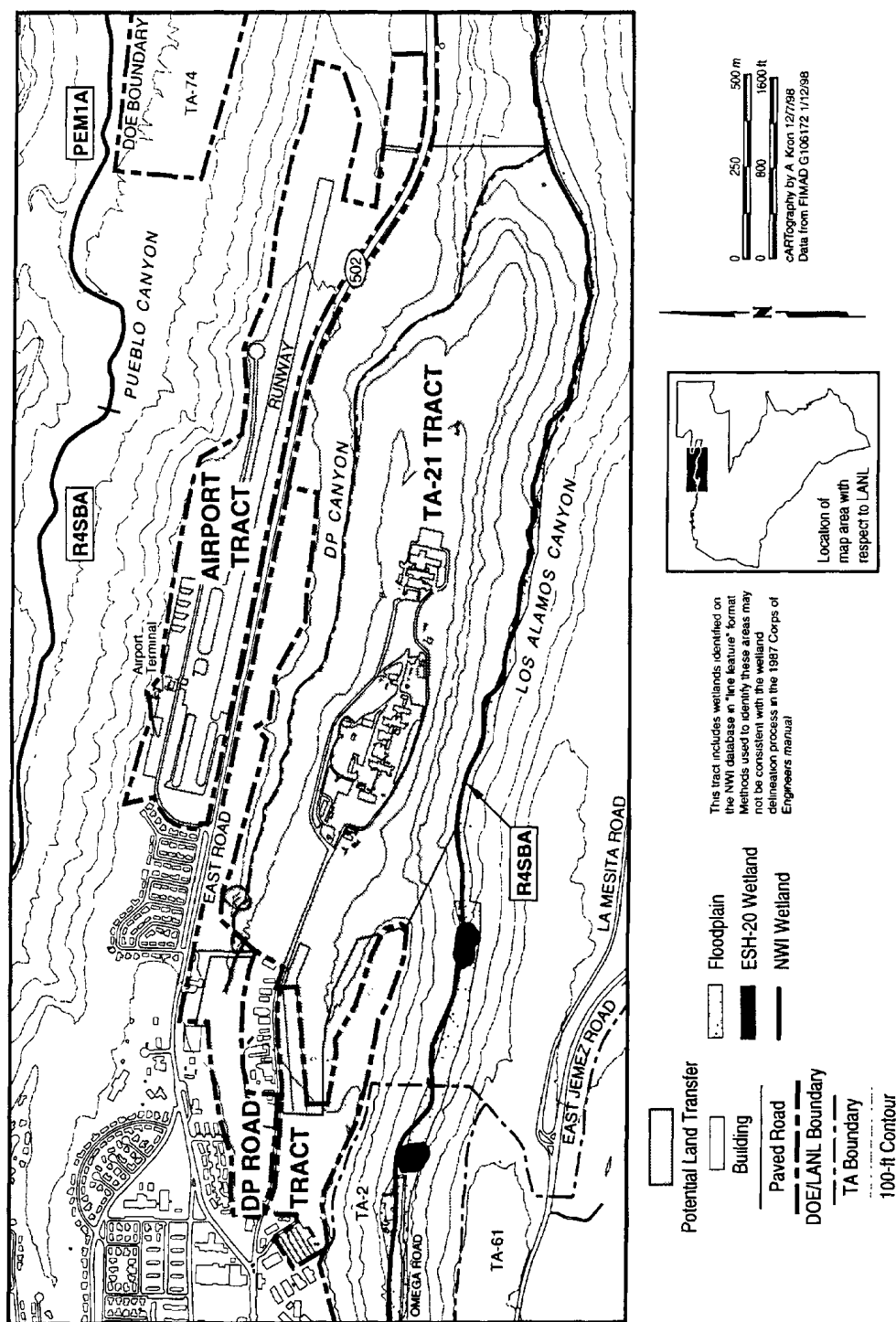


Figure 7. Overview and surface water features (floodplains and wetlands) for proposed land tracts TA-21, DP Road, and Airport.

Summary of Impacts

Direct impacts or effects on floodplain or wetland values have not been identified for the DP Road land tract. No potential for loss of life or property have been identified with respect to floodplains in this tract.

No floodplains or wetlands are present on the DP Road land tract. No primary indirect impacts (on tract lands) resulting from future development of the DP Road land tract for commercial or industrial would occur.

Secondary indirect impacts (off tract lands) resulting from future development of the DP Road land tract for commercial or industrial use could result in minimum effects to floodplain and wetland resources in canyon bottoms not associated with the subject tract. Off tract floodplain values potentially impacted by commercial development in the DP Road land tract include alteration of flood flow retention times, redistribution of sediments, and stream channel migration. Wetland values are described in the first paragraph of Section 2.0 of this assessment. Off tract wetland values potentially impacted by commercial development in the DP Road land tract include alteration of downstream wetland food production, nesting or resting habitat, sediment retention time changes, and loss of experiential or educational opportunities. These secondary indirect effects are anticipated to come from both changes in timing of stormwater runoff and increases in stormwater runoff from increased impermeable surfaces within the tract. Mitigations could be installed to eliminate or minimize these impacts.

At a minimum, best management practices for runoff control, such as silt barriers and stormwater retention ponds, should be in place to mitigate runoff effects during construction or development efforts. These best management practices should incorporate considerations of the NPDES permit program and EPA requirements for a SWPP Plan on projects where more than 5 ac (2 ha) will be disturbed. A stormwater retention pond providing 3,600 ft³ (100 m³) of storage capacity is the EPA standard for NPDES permits for common drainage areas serving an area with 10 or more disturbed acres (4 ha or more). Following construction, stormwater runoff from developed sites may be subject to NPDES permit restrictions and requirements.

2.6 TA-21 Tract

2.6.1 Description

Technical Area (TA) 21 (Figure 7) consists of approximately 260 ac (105 ha) of land on the eastern edge of the Los Alamos townsite. TA-21 tract is located primarily on a mesa top above Los Alamos Canyon on the south and DP Canyon on the north at elevations of approximately 7,200 ft (2,195 m). A portion of the DP Canyon is included in the TA-21 land tract. TA-21 is among the oldest technical areas at LANL. It is the site of the former radioactive materials (plutonium) processing facility.

2.6.2 Proposed Use

The TA-21 land tract has been identified for commercial and industrial use. Commercial or industrial use constitutes the bounding use. The bounding use assumes all land area with less than a 20 percent slope will be incorporated in that use.

2.6.3 Floodplains and Wetlands Description and Impacts from Proposed Conveyance and Transfer Action

Floodplains

The TA-21 land tract mesa top lands include no floodplain areas. Boundary lines for the TA-21 land tract extend to the canyon bottoms in Los Alamos Canyon and DP Canyon where floodplains exist. Land tract boundaries presented in Figure 7 indicate that a portion of the upper end of DP Canyon is included in the TA-21 land tract. This DP Canyon floodplain has not been evaluated for size or extent.

Tract Wetlands

TA-21 has two types of wetlands present within its boundaries. A review of the USFWS NWI and wetland mapping data of LANL indicated the presence of wetlands in TA-21. At some time in the past, industrial outfalls resulted in the creation of these small, mesa top (<1 ac [<0.4 ha]) wetlands. These industrial outfalls have since been decommissioned and closed. Eventually, these associated wetlands will be depleted and disappear. Additionally, a small section of non-delineated riverine wetland and wetland dominated by willows exists in the bottom of DP Canyon, near the upper end of the canyon. The apparent water source for this wetland is surface runoff from the top and sides of the canyon. This wetland is in the floodplain for DP Canyon. This wetland is located between the Airport land tract on the north and the TA-21 land tract on the south. Final surveys for land tract boundaries may result in this wetland being incorporated in one or the other of these tracts.

Nearby or Adjoining Wetlands

Wetlands are present in Los Alamos Canyon which adjoins the TA-21 land tract. These wetland features are presented in Section 2.2.3 “Nearby or Adjoining Wetlands” for the DOE LAAO land tract.

Summary of Impacts

Direct impacts or effects on floodplain or wetland values have not been identified for the TA-21 land tract. No potential for loss of life or property have been identified with respect to floodplains in this tract.

Primary indirect impacts (on tract lands) resulting from future development of the TA-21 land tract for commercial or industrial use could result in complete or partial loss of wetlands and their associated values as a direct result of construction activities (removal of wetland areas or impact from vehicle activity) or by indirect effects (such as runoff).

Wetland values are described in the first paragraph of Section 2.0 of this assessment. Wetland values potentially impacted by commercial or industrial development in the TA-21 land tract include food production, nesting or resting habitat, sediment retention, water quality improvement, and experiential or education. Mitigations could be installed to eliminate or minimize these impacts.

Secondary indirect impacts (off tract lands) resulting from future development of the TA-21 land tract for commercial or industrial use could result in slight impacts to floodplain and wetland resources in canyon bottoms not associated with the subject tract. These secondary indirect impacts are anticipated to come from both changes in timing of stormwater runoff and increases in stormwater runoff from increased impermeable surfaces within the tract. Mitigation could be installed to minimize or eliminate these impacts. Off tract floodplain values potentially impacted by commercial development in the TA-21 land tract include alteration of flood flow retention times, redistribution of sediments, and stream channel migration. Off tract wetland values potentially impacted by commercial development in the TA-21 land tract include alteration of

downstream wetland food production, nesting or resting habitat, sediment retention time changes, and loss of experiential or educational opportunities.

At a minimum, best management practices for runoff control, such as silt barriers and stormwater retention ponds, should be in place to mitigate runoff effects during construction or development efforts. These best management practices should incorporate considerations of the NPDES permit program and EPA requirements for a SWPP Plan on projects where more than 5 ac (2 ha) will be disturbed. A stormwater retention pond providing 3,600 ft³ (100 m³) of storage capacity is the EPA standard for NPDES permits for a common drainage serving an area with 10 or more disturbed acres (4 ha or more). Following construction, stormwater runoff from developed sites may be subject to NPDES permit restrictions and requirements.

2.7 Airport Tract

2.7.1 Description

The Los Alamos Airport tract consists of approximately 205 ac (83 ha) located east of the Los Alamos townsite (Figure 7). The Airport Tract is immediately adjacent to New Mexico State Route 502 (East Road) near the old “East Gate” location.

The Airport tract occupies the mesa top above Pueblo Canyon on the south and Bayo Canyon on the north. To the south approximately 0.4 km (0.25 mi), is Los Alamos Canyon. Single-family residential development borders the western side of this tract and commercial development and East Gate Park are to the east on New Mexico State Route 502. Airport features include a single runway, taxi-ways, a terminal building, private hangars, parking and other associated facilities. All utilities are available: water, sewer, gas, and electric. Commercial air transportation has been present at this site since 1948. Prior to use as an airport, the area was used as a landfill. Other areas of the tract are currently undeveloped.

2.7.2 Proposed Use

The Airport tract has been identified as an area for commercial use or commercial and industrial use. The bounding use assumes all land area with less than a 20 percent slope will be incorporated in that use, if the use is commercial, industrial, or residential. Uses for cultural preservation or natural areas assume no development will occur.

2.7.3 Floodplains and Wetlands Description and Impacts from Proposed Conveyance and Transfer Action

Floodplains

The Airport land tract contains primarily mesa top lands and includes no floodplains on the mesa top. Land tract boundaries presented in Figure 7 indicate that a portion of the upper end of DP Canyon is included in the Airport land tract. This DP Canyon floodplain has not been evaluated for size or extent.

Tract Wetlands

The Airport land tract has no USFWS NWI wetlands. However, a small willow-dominated wetland exists in the bottom of DP Canyon near the top of the drainage. With the designated tract boundaries, portions of this wetland exist in both the Airport tract and the TA-21 tract. This wetland and potential impacts to wetland values are discussed in Section 2.6, TA-21 Land Tract.

Nearby or Adjoining Wetlands

Adjoining the Airport land tract is Pueblo Canyon (Figures 3 and 8) where stretches of riverine (R4SBA) and palustrine (PEM1A) wetlands are identified by the USFWS NWI. These wetlands are discussed in the TA-74 Land Tract, Section 2.9.3.

Summary of Impacts

Direct impacts on floodplain or wetland values have not been identified for the Airport land tract. No potential for loss of life or property has been identified with respect to floodplains in the tract.

Primary indirect impacts (on tract lands) resulting from future development of the Airport land tract for commercial or industrial use could result in complete or partial or complete loss of wetlands and their associated values as a direct result of construction activities (removal of wetland areas or impact from vehicle activity) or by indirect effects (such as runoff).

These losses of floodplain and wetland values are discussed in the TA-74 and TA-21 sections. Mitigations could be installed to eliminate or minimize these impacts.

Secondary indirect impacts (off tract lands) resulting from future development of the Airport land tract for commercial or industrial use could result in minor impacts to floodplain and wetland resources in canyon bottoms not associated with the subject tract. These secondary indirect impacts are anticipated to come from both changes in timing of stormwater runoff and increases in stormwater runoff from increased impermeable surfaces within the tract. Mitigations could be installed to minimize or mitigate these impacts.

At a minimum, best management practices for runoff control, such as silt barriers and stormwater retention ponds, should be in place to mitigate runoff effects during construction or development efforts. These best management practices should incorporate considerations of the NPDES permit program and EPA requirements for a SWPP Plan on projects where more than 5 ac (2 ha) will be disturbed. A stormwater retention pond providing 3,600 ft³ (100 m³) of storage capacity is the EPA standard for NPDES permits for a common drainage serving an area with 10 or more disturbed acres (4 ha or more). Following construction, stormwater runoff from developed sites would be subject to NPDES permit restrictions and requirements.

2.8 White Rock “Y” Tract

2.8.1 Description

The White Rock “Y” tract (Figure 8) consists of approximately 540 ac (219 ha) of undeveloped land. It is adjacent to New Mexico State Route 4 and a portion of Bandelier National Monument. It is located at the extreme southern end of LANL property. The White Rock “Y” tract area is adjacent to Los Alamos Canyon to the east, and Mortandad, and Sandia canyons to the west.

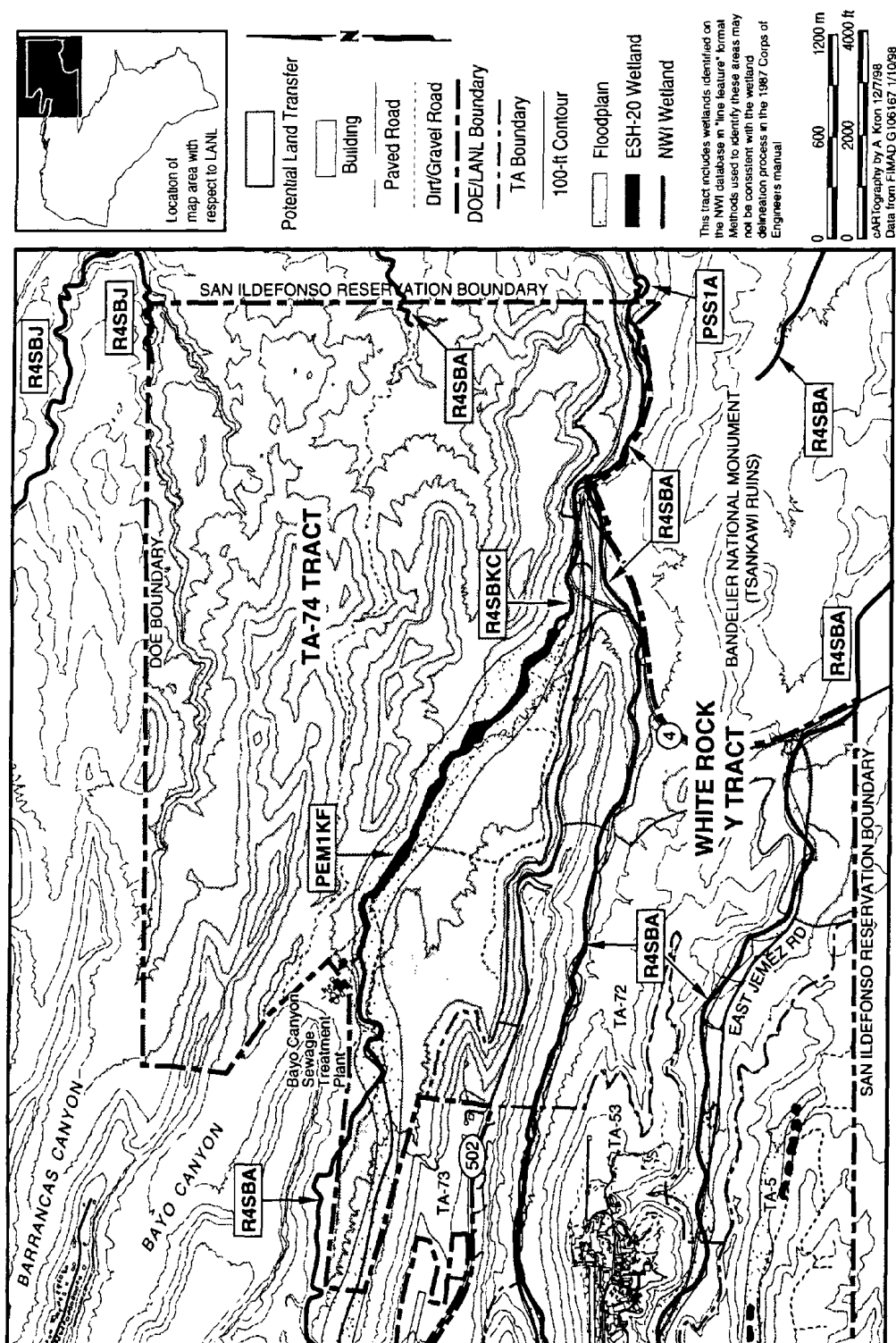


Figure 8. Overview and surface water features (floodplains and wetlands) for proposed land tract TA-74 and White Rock "Y".

2.8.2 Proposed Use

The White Rock “Y” tract has been identified for cultural preservation use or as an area for natural areas, transportation, and utility use. The bounding land use is natural areas, transportation, and utility use for the purposes of this analysis. The bounding use for the White Rock “Y” land tract includes no development.

2.8.3 Floodplains and Wetlands Description and Impacts from Proposed Conveyance and Transfer Action

Floodplains

Los Alamos Canyon and its perennial stream and floodplain cross the White Rock “Y” land tract. Additionally, the ephemeral Sandia Canyon stream and portions of its floodplain are present in the White Rock “Y” land tract.

Tract Wetlands

Wetlands in the White Rock “Y” land tract consist primarily of severely disjointed segments separated by non-wetland vegetation and exposed rock. These linear wetlands range in width from a few feet to perhaps 10 ft (3 m). Individual segments of wetland plant species range from sparse to moderately dense. White Rock “Y” wetlands are categorized by the NWI process as riverine (R4SBA) in “line feature” format. A total of approximately 19,373 ft (5,905 m) of this category of wetlands exists the White Rock “Y” land tract. These wetlands are primarily riparian (stream associated) in nature and the vegetation is dominated by willow. These riparian wetlands function primarily as sediment traps and also provide valuable diversity of habitat for resident animals and migratory birds. Small quantities of water, sufficient for requirements of resident or migratory species may be present during dry portions of the year, depending upon precipitation, evaporation, and other natural processes. Methods used to identify these areas may not be consistent with the wetland delineation process in the 1987 Corps of Engineers Wetlands Delineation Manual.

Nearby or Adjoining Wetlands

Wetlands are present in both Sandia Canyon, to the west of the White Rock “Y” land tract and upstream in Los Alamos Canyon. As these wetlands are upstream of the White Rock “Y” land tract, no impacts to these resources are anticipated as a result of conveyance and transfer activities. Wetlands present in Los Alamos Canyon are described in Section 2.2.3 addressing the DOE LAAO land tract.

Summary of Impacts

Direct impacts on floodplain or wetland values have not been identified for the White Rock “Y” tract. No potential for loss of life or property has been identified with respect to floodplain in the tract. Floodplain values in the White Rock “Y” have been impacted by previous actions such as highway and utility corridors. Any additional construction actions taken in this floodplain could further erode floodplain values. Development actions taken in the White Rock “Y” floodplain for transportation and utility use could result in loss of floodplain values from land disturbance. These impacts would be expected to be minor and short term. Mitigations could be installed to eliminate or minimize these impacts.

Secondary indirect impacts (off tract lands) resulting from future development of the White Rock “Y” tract for installation of utilities or roadways could result in impacts to floodplains and wetland resources in

canyon bottoms not associated with the subject tract. These minor secondary indirect impacts are anticipated to come from both changes in timing of stormwater runoff and increases in stormwater runoff from increased impermeable surfaces within the tract. Floodplain values potentially impacted by future utility development in the White Rock “Y” land tract include alteration of flood flow retention times, redistribution of sediments, and stream channel migration. Wetland values potentially impacted by future utility development in the White Rock “Y” land tract include alteration of downstream wetland food production, nesting or resting habitat, sediment retention time changes, and loss of experiential or educational opportunities. Mitigations could be installed to eliminate or minimize these impacts.

At a minimum, best management practices for runoff control, such as silt barriers and stormwater retention ponds, should be in place to mitigate runoff effects during construction or development efforts. These best management practices should incorporate considerations of the NPDES permit program and EPA requirements for a SWPP Plan on projects where more than 5 ac (2 ha) will be disturbed. A stormwater retention pond providing 3,600 ft³ (100m³) of storage capacity is the EPA standard for NPDES permits for a common drainage serving an area with 10 or more disturbed acres (4 ha or more). Following construction, stormwater runoff from developed sites may be subject to NPDES permit restrictions and requirements.

2.9 TA-74 Tract

2.9.1 Description

The TA-74 tract (Figure 8) is approximately 2,715 ac (1,099 ha) north and east of the Los Alamos townsite partially within Bayo/Pueblo Canyon confluence and extends into remote locations. TA-74 is adjacent to New Mexico State Route 4. It is mostly undeveloped and covered with natural vegetation, including ponderosa pines and shrubs.

2.9.2 Proposed Use

The TA-74 tract has been identified for cultural preservation or natural areas and utility use. For the purposes of this analysis, the natural area and utility use is the bounding use.

2.9.3 Floodplains and Wetlands Description and Impacts from Proposed Conveyance and Transfer Action

Floodplains

Floodplains exist for both Bayo and Pueblo Canyons in the TA-74 tract. McLin (1992) reports a floodplain in the northeast portion of the TA-74 tract in addition to the centrally located floodplain below the Los Alamos County Waste Water Treatment Facility.

Tract Wetlands

Extensive stretches of NWI riverine and palustrine wetlands are a dominant visual feature of the TA-74 area, occupying up to 30 percent of the canyon bottom. This finding was confirmed by field observation in the 1998 field season. The riverine element of these wetlands has vegetation dominated by willow. Other species that may occur include cottonwood, Rocky Mountain maple or box elder, and water birch. Species of wet grasses may also be present.

More extensive global positioning system mapping of the wetlands in TA-74 has been completed. Approximately 10.7 ac (4.3 ha) of wetlands were identified within the TA-74 tract. Plant species in the wetland understory confirmed during this process included those noted in Table 4, including wetland indicator status for each species. It is important to note that the hydrology supporting this wetland receives a major contribution from the Los Alamos County Waste Water Treatment Facility located off the tract at the base of the mesa separating Bayo and Pueblo canyons (Figure 8). Palustrine (PSS1A) wetlands are present. As described in Section 2.2.3, these wetlands are dominated by wetland grasses and rushes with small areas of cattails present.

These riparian wetlands function primarily as sediment traps and also provide valuable diversity of habitat for resident animals and migratory birds. Small quantities of water, sufficient for requirements of resident or migratory species may be present during dry portions of the year, depending upon precipitation, evaporation, and other natural processes. A total of approximately 13,518 ft (4,120 m) of this category of wetlands exists in the TA-74 land tract. Methods used to identify these areas may not be consistent with the wetland delineation process in the 1987 Corps of Engineers Wetlands Delineation Manual.

Table 4¹. Understory Plant Species Confirmed in the TA-74 Wetland

Species Code	Species Name	Common Name	Relative Occurrence	Wetland Plant ² Indicator Status
AGAL (AGG12)	<i>Agrostis alba auct.non L. Argostis gigantea</i> Roth	redtop	Occasional	FacW+
ECCU	<i>Echinochloa cus-galli</i> (L.) Beauv.	barnyard grass	Predominant vegetation	FacW
JUIN (JUIN2)	<i>Juncus interior</i> Wieg.	inland rush	Occasional	FacW
RUCR	<i>Rumex crispus</i> L.	curlyleaf dock	Abundant	FacW
URTI (URDIG)	<i>Urtica dioica</i> ssp. <i>Gracillis</i> (Alt.) Seland	stinging nettle	Abundant	FacW
TYLA	<i>Typha latifolia</i> L.	cattail	Rare	Obligate
XAST	<i>Xanthium strumarium</i> L.	cocklebur	Rare	Fac + to Fac-

1. Species list composed during the 1998 field season.

2. Wetland Plant Indicator Status (Reed, 1988)

- FAC = Facultative plants are equally likely to occur in wetlands or nonwetlands.
- ECO = Economic
- FACU = Facultative upland plants usually occur in nonwetlands.
- NW = Non-weedy
- COL = Colonizing
- FACW = Facultative wetland plants usually occur in wetlands.
- OBL = Obligate wetland plants occur almost always in wetlands.

Nearby or Adjoining Wetlands

No wetlands have been identified in land tracts nearby the TA-74 land tract.

Summary of Impacts

Direct impacts or effects on floodplain or wetland values have not been identified for the TA-74 land tract. No potential forms of life on property has been identified with respect to floodplains on the tract.

Primary indirect impacts (on tract lands) resulting from future development of this tract for utility use could result in partial or complete loss of wetlands and their associated values as a direct result of construction activities (removal of wetland areas or impact from vehicle activity) or by indirect effects (such as runoff).

Development in this tract could result in a potential for loss of property if within the floodplain area. Actions taken in the TA-74 wetlands could adversely impact survival, quality, and natural and beneficial values of the wetlands. Wetland values are described in the first paragraph of Section 2.0 of this assessment. Wetland values potentially impacted by future utility development in the TA-74 land tract include food production, nesting or resting habitat, sediment retention, water quality improvement, and experiential or education use. Mitigations could be installed to minimize or eliminate these impacts.

Secondary indirect impacts (off tract lands) resulting from future development of the TA-74 land tract for utility use could result in minor impacts to floodplain and wetland values in canyon bottoms not associated with the subject tract. These minor secondary indirect impacts are anticipated to come from both changes in timing of stormwater runoff and increases in stormwater runoff from increased impermeable surfaces within the tract, and from increases in sewage treatment effluents. Floodplain values potentially impacted by future utility development in the TA-74 land tract include alteration of flood flow retention times, redistribution of sediments, and stream channel migration. Wetland values potentially impacted by future utility development in the TA-74 land tract include alteration of downstream wetland food production, nesting or resting habitat, sediment retention time changes, and loss of experiential or educational opportunities. Mitigations could be installed to minimize or eliminate these impacts.

At a minimum, best management practices for runoff control, such as silt barriers and stormwater retention ponds, should be in place to mitigate runoff effects during construction or development efforts. These best management practices should incorporate considerations of the NPDES permit program and EPA requirements for a SWPP Plan on projects where more than 5 ac (2 ha) will be disturbed. A stormwater retention pond providing 3,600 ft³ (100 m³) of storage capacity is the EPA standard for NPDES permits for a common drainage area serving an area with 10 or more disturbed acres (4 ha or more). Following construction, stormwater runoff from developed sites may be subject to NPDES permit restrictions and requirements; sewage plant effluents would similarly require permitting, as appropriate.

2.10 White Rock Tract

2.10.1 Description

The White Rock tract consists of approximately 100 ac (40 ha) of undeveloped lands immediately adjacent to New Mexico State Route 4. State Route 4 separates the tract from the City of White Rock (Figure 9). It borders a portion of the San Ildefonso Indian Reservation Sacred Area. LANL's current low-level waste landfill facility (TA-54) is adjacent to this tract. Cedro Canyon to the east and Pajarito Canyon to the west are adjacent to this tract. Canada del Buey passes through this tract and continues into the town of White Rock. The floodplain in this area is conveyed under State Route 4 via a culvert. A water pump station is located near the eastern terminus of the tract and the Los Alamos Chamber of Commerce operates a small visitor center on the south side adjacent to New Mexico State Route 4.

2.10.2 Proposed Use

The White Rock tract has been identified for cultural preservation and commercial development or commercial and residential use. The use of the tract for commercial and residential use is the bounding

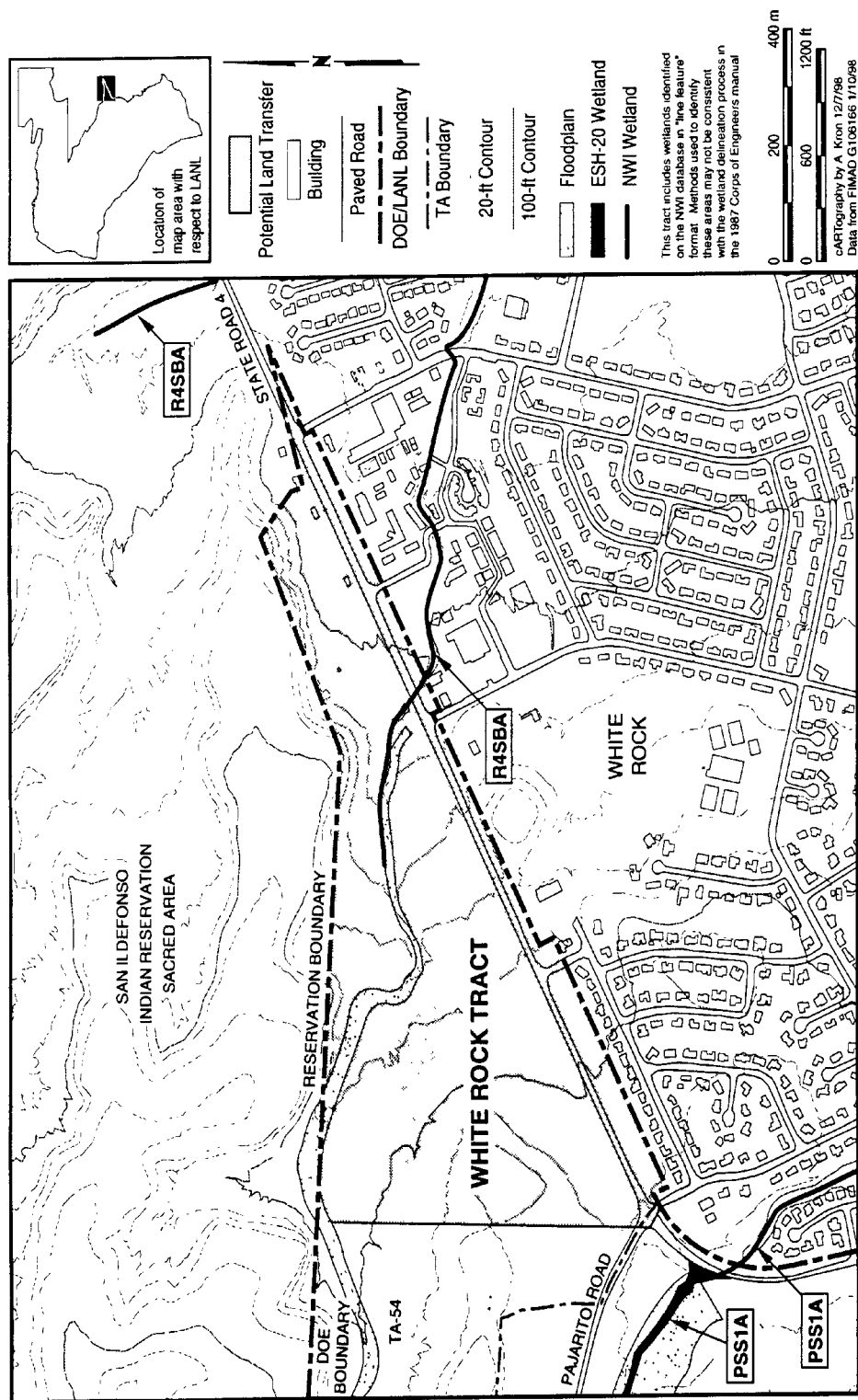


Figure 9. Overview and surface water features (floodplains and wetlands) for proposed land tract White Rock.

use for this analysis. The bounding use assumes all land area with less than a 20 percent slope will be incorporated in that use, if the use is commercial, industrial, or residential. Uses for cultural preservation or natural areas assume no development will occur.

2.10.3 Floodplains and Wetlands Description and Impacts from Proposed Conveyance and Transfer Action

Floodplains

Canada del Buey and its associated floodplain pass through the White Rock land tract. Potential for effects on off-tract resources and values exists. McLin (1998) modeled stormwater flows for the White Rock tract. Values for existing conditions (no human-made impervious surfaces) and for several potential impervious surface levels (percentages of the tract) are presented in Table 5.

Table 5. Surface Water Flow from White Rock Land Tract Assuming Various Levels of Impervious Surface.

Percent of Tract Impervious	0 percent (existing conditions)	10 percent	20 percent	50 percent	70 percent	100 percent
Peak Q water flow (cfs/cms)	26/0.7	35/1.0	45/1.3	74/2.1	94/2.7	123/3.5
24-hr runoff volume (ac-ft)	1.98	3.97	5.95	7.93	9.92	11.90

Tract Wetlands

Wetlands segments in the White Rock land tract consist primarily of extremely disjointed segments separated by expanses of non-wetland vegetation and exposed rock. These linear wetlands range in width from a few feet to perhaps 10 ft (3 m). Individual segments of wetland plant species range from sparse to moderately dense. These riparian wetlands function primarily as sediment traps and also provide valuable diversity of habitat for resident animals and migratory birds. Small quantities of water, sufficient for requirements of resident or migratory species may be present during dry portions of the year, depending upon precipitation, evaporation, and other natural processes. Wetlands identified from the USFWS NWI were in “line feature” format and categorized as riverine (R4SBA). A total of approximately 957 ft (292 m) of this category of wetlands exist in the White Rock tract. Methods used to identify these areas may not be consistent with the wetland delineation process in the 1987 Corps of Engineers Wetlands Delineation Manual.

Nearby or Adjoining Wetlands

Pajarito Canyon, located south and west of the tract, contains wetlands within the stream channel (Figure 9). These adjoining wetlands should not be subjected to direct or indirect impacts as a result of development activities in the White Rock land tract due to their upstream location and associated spatial separation from the tract.

Summary of Impacts

Direct impacts on floodplain and wetland resources have not been identified for the White Rock tract. No potential for loss of life or property have been identified with respect to floodplain in this tract.

Primary indirect impacts (on tract) resulting from commercial development in the White Rock land tract could eliminate floodplain values in the portion of the floodplain within the tract. Development on this site may require changes to the culvert under State Route 4 that conveys the Canada del Buey floodplain under the highway. A potential exists for adverse effects on lives and property subsequent to development of this land tract. Mitigations could be installed to eliminate these impacts.

Secondary indirect impacts (off tract lands) resulting from future development of the White Rock land tract for commercial use could result in impacts to floodplain and wetland resources in canyon bottoms not associated with the conveyance and transfer tracts. These secondary indirect impacts are anticipated to come from both changes in timing of stormwater runoff and increases in stormwater runoff from increased impermeable surfaces within the tract. Floodplain values potentially impacted by commercial development in the White Rock land tract include alteration of flood flow retention times, redistribution of sediments, and stream channel migration. Wetland values potentially impacted by development in the White Rock land tract include alteration of downstream wetland food production, nesting or resting habitat, sediment retention time changes, and loss of experiential or educational opportunities. Mitigations could be installed to minimize or eliminate these impacts.

At a minimum, best management practices for runoff control, such as silt barriers and stormwater retention ponds, should be in place to mitigate runoff effects during construction or development efforts. These best management practices should incorporate considerations of the NPDES permit program and EPA requirements for a SWPP Plan on projects where more than 5 ac (2 ha) will be disturbed. A stormwater retention pond providing 3,600 ft³ (100m³) of storage capacity is the EPA standard for NPDES permits for a common drainage serving an area with 10 or more disturbed acres (4 ha or more). Following construction, stormwater runoff from developed sites may be subject to NPDES permit restrictions and requirements.

3.0 Mitigations to the Proposed Conveyance and Transfer Action

Floodplains are present in six of the ten tracts proposed for conveyance or transfer: Rendija Canyon, TA-21, Airport, White Rock “Y,” TA-74, and White Rock land tracts. Impacts to floodplains are not expected for proposed uses such as cultural preservation or natural areas which do not involve significant development. Mitigation actions associated with activities in floodplains could be evaluated against requirements of the Los Alamos Code Ordinance NO. 85-70 “An Ordinance Repealing Chapter 15.16 of the Los Alamos County Code Adopting a New Chapter 17.70 Pertaining to Flood Damage Prevention.” This statute addresses development in floodplains on County lands. Similar county code ordinances are applicable to land within Santa Fe County. Mitigation to impacts associated with commercial, industrial, and residential development will require on-site efforts during and after development. These mitigation actions may include avoiding construction in all areas of floodplains or developing buffer areas around floodplains. Specific terms in the conveyance and transfer documents could establish the legal requirements for these mitigation actions.

Wetlands are present in Rendija Canyon, TA-21, Airport, White Rock “Y,” TA-74, and White Rock land tracts. Potential wetland impacts could be evaluated against requirements of the Clean Water Act 404 permit process, implementation of SWPP measures and NPDES permitting requirements.

Impacts to off-site resources could be mitigated by appropriate management of stormwater runoff during construction and operation of new facilities or activities. These mitigation actions could include elimination of construction activities in wetland areas or establishing buffer areas around wetlands to reduce or eliminate impacts. Specific terms in the conveyance and transfer documents could establish the legal requirements for these mitigation actions.

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